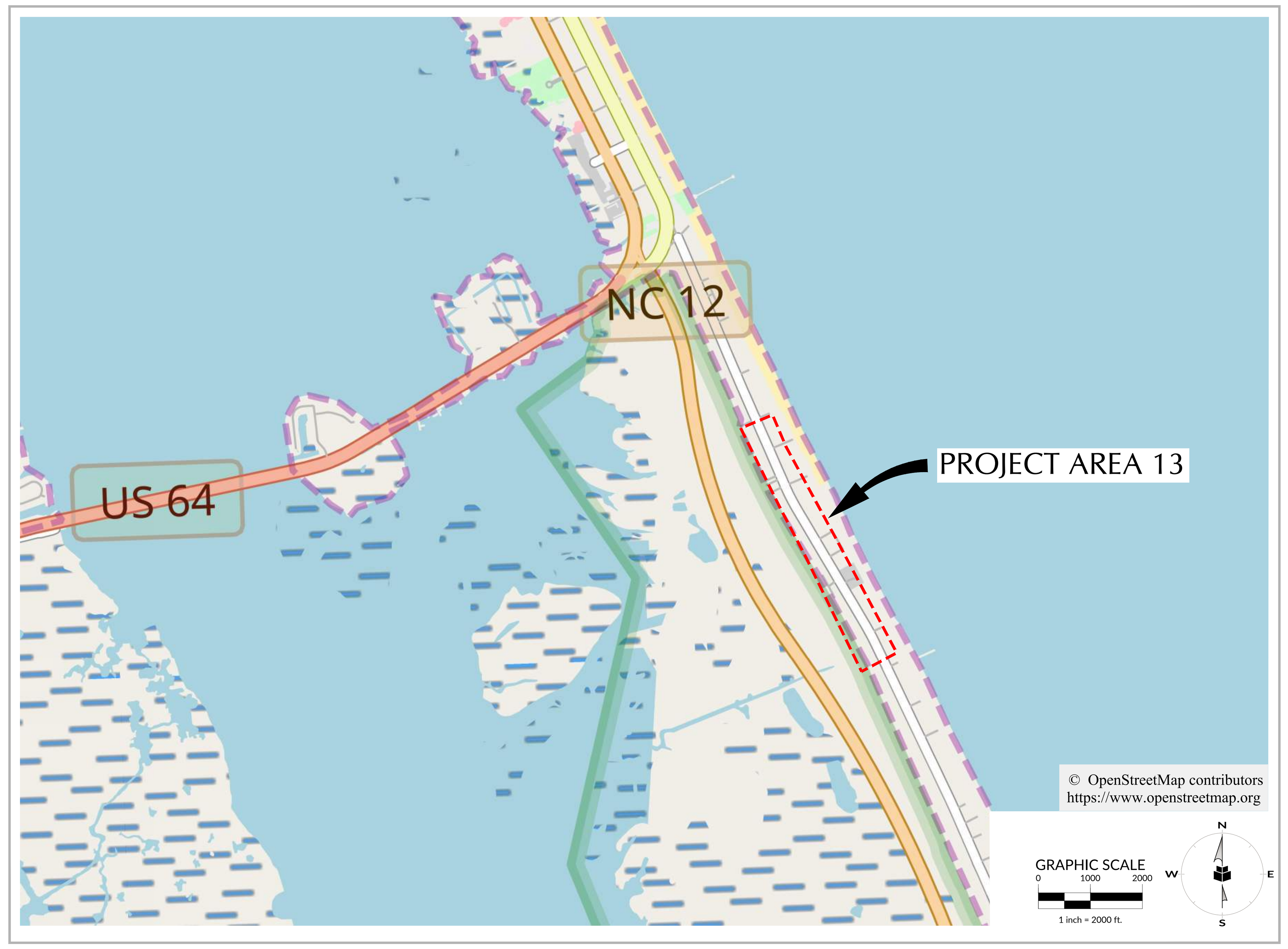
CONSTRUCTION DRAWINGS

SOUTH OREGON INLET ROAD STORMWATER INFRASTRUCTURE IMPROVEMENTS AREA 13

TOWN OF NAGS HEAD | DARE COUNTY | NORTH CAROLINA

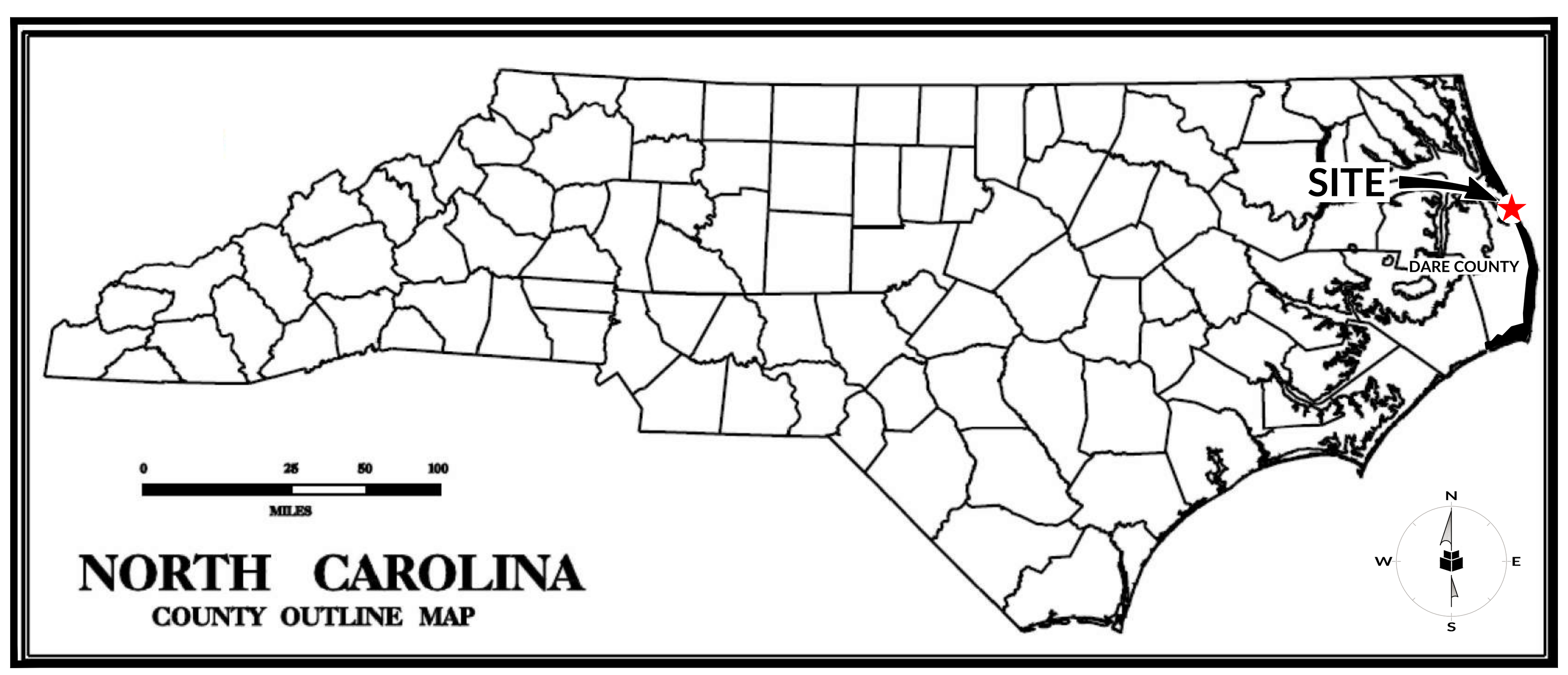
JANUARY 22, 2025



Index of Sheets

SURVEY BENCHMARK

PROJECT TEMPORARY BENCHMARKS ARE LOCAL TO SITE.
SEE PLAN & PROFILE SHEETS 2.01 - 2.03 FOR TEMPORARY BENCHMARK INFORMATION.
VERTICAL DATUM BASED ON NAVD 88.



PROJECT DESCRIPTION:

THIS CONTRACT IS FOR DRAINAGE IMPROVEMENTS IN THE TOWN OF NAGS HEAD.

AREA 13 IS LOCATED PARALLEL TO SOUTH OLD OREGON INLET ROAD (SR 1243) BETWEEN HARGROVE STREET AND THE TOWN FIRE STATION SOUTH OF IDA STREET.

THE SCOPE OF WORK INCLUDES INSTALLATION OF A FRENCH DRAIN STORMWATER MANAGEMENT SYSTEM ON THE EASTERN SIDE OF SOUTH OLD OREGON INLET ROAD, WITHIN THE RIGHT-OF-WAY, FROM SOUTH OF THE HARGROVE STREET BEACH ACCESS TO NORTH OF THE NORTHERN INTERSECTION OF TIDE DRIVE, INSTALLATION OF A STORMWATER PUMP STATION WITHIN THE EASTERN RIGHT-OF-WAY NORTH OF HARVEST STREET, INSTALLATION OF A FORCE MAIN FROM THE PUMP STATION TO CARIBSEA STREET, AND INSTALLATION OF A STORMWATER INFILTRATION BASIN WITHIN THE RIGHT-OF-WAY ON THE WESTERN SIDE OF THE ROADWAY FROM CARIBSEA STREET TO IDA STREET. INCIDENTAL WORK INCLUDES THE REMOVAL AND REPLACEMENT OF A PORTION OF THE EXISTING MULTI USE PATH, REMOVAL AND REPLACEMENT OF NUMEROUS DRIVEWAY CONNECTIONS, REGRADING AND REVEGETATION OF THE EXISTING ROADSIDE SWALE ON THE EASTERN SIDE OF THE ROADWAY, ONE BORE AND JACK ROADWAY PIPE CROSSING, AND GRADING AND REVEGETATION OF THE INFILTRATION BASIN.

THIS CONTRACT IS BEING COMPLETED FOR THE BENEFIT OF THE TOWN OF NAGS HEAD AND ITS CITIZENS WITH FUNDING FROM THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY DIVISION OF WATER INFRASTRUCTURE.

NORTH CAROLINA PROFESSIONAL SEAL 047183 ENGINEER DARWICHE EL SABEH 3/5/2025

NORTH CAROLINA PROFESSIONAL SEAL 024420 ENGINEER CHRISTOPHER N. HUFF 3/5/2025

NORTH CAROLINA PROFESSIONAL SEAL 9531 ENGINEER DONALD NICHOLAS KISLEY 3/5/2025

DANGER
Overhead Electrical Power Lines

811
Know what's below.
Call before you dig.

FINAL DRAWING
FOR REVIEW PURPOSES ONLY
NOT RELEASED FOR CONSTRUCTION

CONTACT LIST:

Project Manager
Amanda Hollingsworth, PE, CFM
WithersRavenel
137 S Wilmington Street, Suite 200
Raleigh, NC 27601
919-535-5200
ahollingsworth@withersravenel.com

Project Engineer (Pump Station)
Chris Huff, PE
WithersRavenel
115 MacKenan Drive
Cary, NC 27511
919-469-3340
chuff@withersravenel.com

Engineer (Electrical)
Nick Kisley, PE
D.N. Kisley P.E.
115 MacKenan Drive
Cary, NC 27511
919-460-9091
nkisley@withersravenel.com

Town Engineer
David Ryan, P.E.
Town of Nags Head
Public Services Department
252-441-6221
david.ryan@nagsheadnc.gov

PREPARED BY:

WithersRavenel
137 S Wilmington Street | Suite 200 | Raleigh, NC 27601
License #: F-1479 | t: 919.469.3340 | www.withersravenel.com

OWNER:

THE TOWN OF NAGS HEAD N.C. 1961

Construction Drawings
South Oregon Inlet Road
Stormwater Infrastructure Improvements
Area 13
ARPA/LASII Stormwater Construction Grant
PROJECT NO: SRP-SW-ARP-0019.1
WR PROJECT NO. 03210159.03
INITIAL PLAN DATE: 02/29/2024

0.00

our people • your success
EST. 1983

ABBREVIATIONS

&	AND
@	AT
AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
ABC	AGGREGATE BASE COURSE
ABS	ACRYLONITRILE BUTADIENE STYRENE
ACI	AMERICAN CONCRETE INSTITUTE
AI	AREA INLET
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
ARV	AIR RELEASE VALVE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWWA	AMERICAN WATER WORKS ASSOCIATION
B-B	BACK TO BACK
BFE	BASE FLOOD ELEVATION
BFFE	BASEMENT FINISHED FLOOR ELEVATION
BFP	BACK FLOW PREVENTER
BFV	BUTTERFLY VALVE
BFW	BOTTOM FACE OF WALL
BM	BENCHMARK
BOA	BLOW OFF ASSEMBLY
BOB	BOTTOM OF BANK
BOC	BACK OF CURB
BRL	BUILDING RESTRICTION LINE
C&G	CURB & GUTTER
CA	COMMON AREA
CABC	COARSE AGGREGATE BASE COURSE
CAMA	COASTAL AREA MANAGEMENT ACT
CATV	CABLE TELEVISION
CB	CATCH BASIN
C-C	CENTER TO CENTER
CF	CUBIC FOOT (FEET)
CFS	CUBIC FEET PER SECOND
CL	CENTERLINE
CLR	CLEAR SPACE
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
CO	CLEAN OUT
CONC	CONCRETE
CPP	CORRUGATED PLASTIC PIPE
CY	CUBIC YARD
DI	DROP INLET
DIA/Ø	DIAMETER
DIP	DUCTILE IRON PIPE
DIPS	DUCTILE IRON PIPE SIZING
E	EAST
EA	EACH
EG	EXISTING GRADE
EGCL	EXISTING GRADE CENTERLINE
EL	ELEVATION
ELEC	ELECTRICAL
EOP	EDGE OF PAVEMENT
EX	EXISTING
F-F	FACE TO FACE
FDC	FIRE DEPARTMENT CONNECTION
FEMA	FEDERAL EMERGENCY MANAGEMENT AGENCY
FES	FLARED END SECTION
FFE	FINISHED FLOOR ELEVATION
FPE	FINISHED PAD ELEVATION
FG	FINISHED GRADE
FGCL	FUTURE OR FINISHED GRADE CENTERLINE
FHA	FIRE HYDRANT ASSEMBLY
FL	FLOW LINE
FM	FORCE MAIN
FOC	FACE OF CURB
FT/'	FOOT/ FEET
GA	GAUGE
GALV	GALVANIZED
GFFE	GARAGE FINISHED FLOOR ELEVATION
GPE	GRADED PAD ELEVATION
GPM	GALLONS PER MINUTE
GV	GATE VALVE
GW	GUY WIRE
HDD	HORIZONTAL DIRECTIONAL DRILL
HDPE	HIGH DENSITY POLYETHYLENE PIPE
HORIZ	HORIZONTAL
HPT	HIGH POINT
HPPP	HIGH PERFORMANCE POLYPROPYLENE PIPE
HW	HEADWALL
IN/"	INCH
INV	INVERT
JB	JUNCTION BOX
LAT	LATITUDE
LF	LINEAR FEET
LOD	LIMIT OF DISTURBANCE
LONG	LONGITUDE
LPT	LOW POINT
LT	LEFT
MAX	MAXIMUM
MFR	MANUFACTURER
MGD	MILLION GALLONS PER DAY
MH	MANHOLE
MIN	MINIMUM
MJ	MECHANICAL JOINT
MWSE	MAXIMUM WATER SURFACE ELEVATION
N	NORTH
NE	NORTH EAST
NIC	NOT IN CONTRACT
NO./#	NUMBER
NTS	NOT TO SCALE
NW	NORTH WEST
OC	ON CENTER
OD	OUTSIDE DIAMETER
OH	OVERHEAD UTILITY
OHE	OVERHEAD ELECTRICAL LINE
OS	OPEN SPACE
PA	PLANTING AREA
PCF	POUNDS PER CUBIC FOOT
PE	POLYETHYLENE
PG	PROPOSED GRADE
PGCL	PROPOSED GRADE CENTERLINE
PH	PHASE
PS	PUMP STATION
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE PIPE
R	RADIUS
R/W	RIGHT OF WAY
RCBC	REINFORCED CONCRETE BOX CULVERT
RCP	REINFORCED CONCRETE PIPE
RECP	ROLLED EROSION CONTROL PRODUCT
RGRCP	RING-GASKETED REINFORCED CONCRETE PIPE
RJ	RESTRAINED JOINT
RT	RIGHT
S	SOUTH
SC	STANDARD CURB
SCH	SCHEDULE
SCM	STORMWATER CONTROL MEASURE
SDR	STANDARD DIMENSION RATIO
SE	SOUTH EAST
SF	SQUARE FEET
SPC	SPILL CURB
SSTL	STAINLESS STEEL
STA	STATION
SW	SOUTH WEST
SY	SQUARE YARD
T	TELEPHONE
TBM	TEMPORARY BENCHMARK
TCA	TREE CONSERVATION AREA
TDD	TEMPORARY DIVERSION DITCH
TFW	TOP FACE OF WALL
TOB	TOP OF BANK
TOC	TOP OF CURB
TOE	TOE OF SLOPE
TRM	TURF REINFORCEMENT MAT
TYP	TYPICAL
UG	UNDERGROUND
UP	UTILITY POLE
USGS	UNITED STATES GEOLOGICAL SURVEY
VERT	VERTICAL
W	WEST
W/	WITH
WM	WATER METER/WATER MAIN
WSE	WATER SURFACE ELEVATION
WWF	WOVEN WIRE FABRIC
WWM	WELDED WIRE MESH
YI	YARD INLET

EASEMENTS:

AE	ACCESS EASEMENT (PUBLIC)
PAE	ACCESS EASEMENT (PRIVATE)
CORUE	CITY OF RALEIGH UTILITY EASEMENT
CORSSE	CITY OF RALEIGH SANITARY SEWER EASEMENT
DHMAE	DRAINAGE AND HEADWALL MAINTENANCE AND ACCESS EASEMENT
DE	DRAINAGE EASEMENT (PUBLIC)
PDE	DRAINAGE EASEMENT (PRIVATE)
GE	GREENWAY EASEMENT (PUBLIC)
PGE	GREENWAY EASEMENT (PRIVATE)
MUPE	MULTI-USE PATH EASEMENT (PUBLIC)
PMUPE	MULTI-USE PATH EASEMENT (PRIVATE)
PSMAE	PUMP STATION MAINTENANCE & ACCESS EASEMENT
TCE	TEMPORARY CONSTRUCTION EASEMENT
SSE	SANITARY SEWER EASEMENT (PUBLIC)
PSSE	SANITARY SEWER EASEMENT (PRIVATE)
SDTE	SIGHT DISTANCE EASEMENT (PUBLIC)
STE	STREET TREE EASEMENT (PUBLIC)
UDE	UTILITY/DRAINAGE EASEMENT (PUBLIC)
PUDE	UTILITY/DRAINAGE EASEMENT (PRIVATE)
SCMMAE	SCM MAINTENANCE AND ACCESS EASEMENT
UE	UTILITY EASEMENT (PUBLIC)
PUE	UTILITY EASEMENT (PRIVATE)
VWDE	VARIABLE WIDTH DRAINAGE EASEMENT (PUBLIC)
PVWDE	VARIABLE WIDTH DRAINAGE EASEMENT (PRIVATE)

LEGEND

DESCRIPTION	EXISTING	PROPOSED
MINOR CONTOUR INTERVAL		
MAJOR CONTOUR INTERVAL	100	100
SPOT ELEVATION	123.4	x123.45
PROPERTY LINE		N/A
RIGHT-OF-WAY	R/W	N/A
EASEMENT		
CENTERLINE		N/A
EDGE OF PAVEMENT	EOP	
TRAIL		N/A
DIRT OR GRAVEL DRIVE		N/A
DIRT OR GRAVEL ROAD		N/A
STORM DRAINAGE		
UNDERGROUND ELECTRIC	E	N/A
OVERHEAD ELECTRIC	OHE	N/A
UNDERGROUND TELEPHONE	T	N/A
TELEPHONE PEDESTAL		N/A
OVERHEAD TELEPHONE	OHT	N/A
OVERHEAD UTILITY	OHU	N/A
CABLE TELEVISION (CATV)	CTV	N/A
CATV PEDESTAL		N/A
UTILITY POLE		N/A
LIGHT POLE		N/A
WATER LINE	W	N/A
12" WATER LINE		N/A
18" RAW WATER		N/A
WATER VALVE	W	N/A
FIRE HYDRANT	HYD	N/A
WATER SERVICE		N/A
GRAVITY SANITARY SEWER	SS	N/A
SEWER SERVICE		N/A
MANHOLE	SS	N/A
FORCE MAIN	FM	FM
SWALE		
BUILDING OR STRUCTURE		N/A
FENCING STRUCTURE	XX XX	XX XX
SIGN		N/A
WOODSLINE		
WATERWAYS/BODIES OF WATER		N/A
LIMIT OF DISTURBANCE	N/A	LOD
TREE PROTECTION FENCE	N/A	TP
SILT FENCE	N/A	SF
REINFORCED SILT FENCE OUTLET	N/A	
TEMPORARY INLET PROTECTION	N/A	
TEMPORARY PIPE INLET PROTECTION	N/A	
WETLANDS		N/A
GRAVEL		
RIP-RAP		
CONCRETE/CONCRETE PAVING		
ASPHALT PAVING		
TREE (DECIDUOUS)		
TREE (EVERGREEN)		

GENERAL NOTES:

1. CONTRACTOR TO HAVE A COMPLETE SET OF CONTRACT DOCUMENTS AS WELL AS ALL PERMIT APPROVALS AND EASEMENTS ON JOB SITE AT ALL TIMES.
2. CONSTRUCTION AND MATERIAL SPECIFICATIONS TO CONFORM TO CURRENT NORTH CAROLINA DEPARTMENT OF TRANSPORTATION, DEPARTMENT OF ENVIRONMENTAL QUALITY, OR TOWN OF NAGS HEAD STANDARDS, AND CONTRACT DOCUMENTS.
3. THE CONTRACTOR SHALL SUBMIT ALL REQUIRED SHOP DRAWINGS FOR REVIEW AND APPROVAL BY THE ENGINEER BEFORE EQUIPMENT OR MATERIAL IS ORDERED.
4. ALL KNOWN EXISTING UTILITIES HAVE BEEN LOCATED BASED ON AVAILABLE INFORMATION. CONTRACTOR IS RESPONSIBLE TO ACCURATELY LOCATE, BOTH HORIZONTALLY AND VERTICALLY, ALL EXISTING UTILITIES PRIOR TO START OF CONSTRUCTION (NC ONE CALL CENTER 1-800-632-4949). ALL COSTS ASSOCIATED WITH ANY DAMAGE TO KNOWN OR UNKNOWN EXISTING UTILITIES RESULTING FROM CONTRACTOR'S FAILURE TO ADEQUATELY PROTECT EXISTING UTILITIES DURING CONSTRUCTION TO BE BORNE SOLELY BY CONTRACTOR.
5. THE CONTRACTOR SHALL CONTACT NC811 AND THE OWNERS OF THE FOLLOWING UTILITIES PRIOR TO MOBILIZATION FOR LOCATION OF THE FOLLOWING KNOWN UNDERGROUND UTILITIES IN THE PROJECT AREA:
   - POWER
   - PHONE
   - GAS
   - WATER
   - SEWER
   - CABLE
   - OTHER
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL AND SHALL ADHERE TO THE PROVISIONS OF THE MUTCD (MOST CURRENT EDITION).
7. CONTRACTOR TO SAVE PROPERTY IRONS, MONUMENTS, OTHER PERMANENT POINTS AND LINES OF REFERENCE AND CONSTRUCTION STAKES. A REGISTERED LAND SURVEYOR AT CONTRACTOR'S EXPENSE TO REPLACE PROPERTY IRONS, MONUMENTS, AND OTHER PERMANENT POINTS OF REFERENCE DESTROYED BY CONTRACTOR.
8. CONTRACTOR TO FURNISH, INSTALL, AND MAINTAIN ALL NECESSARY EROSION CONTROL MEASURES WHETHER OR NOT SHOWN ON PLANS TO PROTECT ADJACENT DITCHES, CANALS, ROADWAYS, ETC. FROM SILT AND EROSION.
9. CONTRACTOR TO RELOCATE EXISTING UTILITIES AS REQUIRED FOR INSTALLATION OF NEW WORK. THERE WILL BE NO ADDITIONAL OR SEPARATE PAY ITEM FOR THIS WORK UNLESS SPECIFICALLY CALLED OUT IN BID FORM. RELOCATIONS OF EXISTING UTILITIES MUST BE COORDINATED WITH AFFECTED UTILITY COMPANY.
10. CONTRACTOR TO SUPPORT ALL UTILITY POLES AS NECESSARY. CONTRACTOR TO COORDINATE UTILITY POLE SUPPORT WITH APPROPRIATE UTILITY COMPANIES.
11. CONTRACTOR SHALL PROTECT, AND IF NECESSARY, REMOVE, STORE, AND RESET ALL SIGNS, MAILBOXES, ETC. ENCOUNTERED DURING CONSTRUCTION TO ORIGINAL CONDITION. ITEMS DAMAGED DURING REMOVAL, STORAGE, OR RESETTING SHALL BE REPLACED WITH IDENTICAL OR EQUAL ITEMS AT NO ADDITIONAL COST.
12. CONTRACTOR SHALL MAINTAIN ACCESS TO PROPERTIES AT ALL TIMES.
13. CONTRACTOR TO RESTORE ALL DISTURBED AREAS TO EXISTING GRADE UNLESS OTHERWISE NOTED ON DRAWINGS.
14. ROADWAY DITCHES DISTURBED DURING CONSTRUCTION TO BE RESTORED TO PRE-CONSTRUCTION CONDITION OR BETTER AND CONFORM TO NCDOT REQUIREMENTS.
15. ALL DISTURBED AREAS SHALL BE PREPPED AND RESEEDED IN ACCORDANCE WITH SECTION 1660 OF THE NCDOT STANDARD SPECIFICATIONS. LIMITED AREAS OF THE PROJECT MAY REQUIRE SOD INSTALLATION, AT THE DIRECTION OF THE TOWN ENGINEER. SODDING SHALL BE COMPLETED IN ACCORDANCE WITH SECTION 1664 OF THE NCDOT STANDARD SPECIFICATIONS.
16. EXCAVATED MATERIAL TO BE PLACED WITHIN LIMITS OF DISTURBANCE DURING CONSTRUCTION. CONTRACTOR TO PROVIDE NECESSARY SEDIMENT AND EROSION CONTROL MEASURES TO CONTROL RUN-OFF. EXCESS EXCAVATED MATERIAL TO BE REMOVED FROM CONSTRUCTION SITE AND DISPOSED OF IN A LEGAL MANNER.
17. EASEMENTS ACROSS SLOPED AREAS TO BE GRADED UNIFORMLY ACROSS SLOPE AT NO STEEPER THAN 5:1 HORIZONTAL TO VERTICAL RATIO.
18. POSITIVE DRAINAGE TO BE PROVIDED FOR ALL AREAS THROUGHOUT CONSTRUCTION.

DANGER
Overhead Electrical Power Lines

811
Know what's below. Call before you dig.

FINAL DRAWING
FOR REVIEW PURPOSES ONLY
NOT RELEASED FOR CONSTRUCTION

WithersRavenel
137 S Wilmington Street | Suite 200 | Raleigh, NC 27601
License #: F-1479 | t: 919.469.3340 | www.withersravenel.com
our people • your success

THE TOWN OF NAGS HEAD N.C. 1961
Post Office Box 99
Nags Head, NC 27959

CONSTRUCTION DRAWINGS
SOUTH OREGON INLET ROAD
STORMWATER INFRASTRUCTURE IMPROVEMENTS
AREA 13
Town Of Nags Head | Dare County | North Carolina

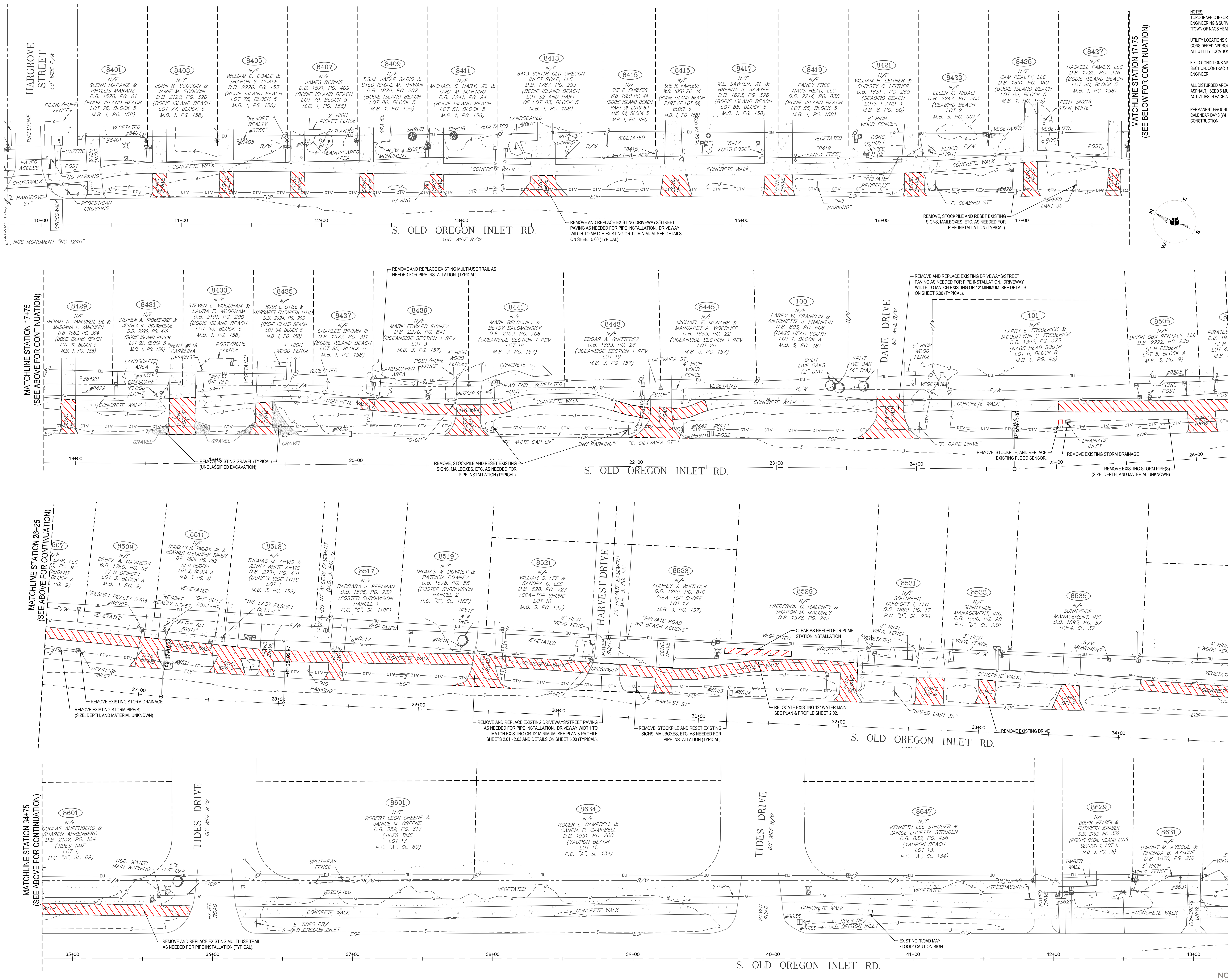
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 047183 DARWICHE EL SABEH
DocuSigned by: 3/5/2025

INITIAL PLAN DATE: 02/29/2024
REVISIONS:
01/22/2025

WR JOB NUMBER 03210159.03
DRN: BGB DGN: BGB CKD: DNS/APH

GENERAL NOTES, ABBREVIATIONS, AND LEGEND

0.01



NOTES:

TOPOGRAPHIC INFORMATION IS FROM FIELD SURVEY CONDUCTED BY COASTAL ENGINEERING & SURVEYING (KITTY HAWK, NC), AS SHOWN ON DRAWINGS ENTITLED "TOWN OF NAGS HEAD DRAINAGE AREA #13", DATED 7/10/19.

UTILITY LOCATIONS SHOWN ARE BASED ON AVAILABLE INFORMATION AND SHALL BE CONSIDERED APPROXIMATE AND POSSIBLY INCOMPLETE. CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO EXCAVATION.

FIELD CONDITIONS MAY REQUIRE DEVIATION FROM PLAN LOCATION AND TYPICAL SECTION. CONTRACTOR SHALL COORDINATE ALL DEVIATIONS WITH THE TOWN AND THE ENGINEER.

ALL DISTURBED AREAS SHALL BE STABILIZED IN KIND WITH PAVEMENT (CONCRETE OR ASPHALT), SEED & MULCH, OR SOD, WITHIN 7 DAYS OF CESSATION OF CONSTRUCTION ACTIVITIES IN EACH AREA. SEE SHEET 3.0 FOR ADDITIONAL REQUIREMENTS.

PERMANENT GROUND COVER SHALL BE PROVIDED WITHIN 15 WORKING DAYS OR 90 CALENDAR DAYS (WHICHEVER IS SHORTER) FOLLOWING COMPLETION OF CONSTRUCTION.

811
Know what's below. Call before you dig.

DANGER
Overhead Electrical Power Lines

FINAL DRAWING
FOR REVIEW PURPOSES ONLY
NOT RELEASED FOR CONSTRUCTION

WithersRavenel
137 S Wilmington Street | Suite 200 | Raleigh, NC 27601
License #: F-1479 | t: 919.469.3340 | www.withersravenel.com

THE TOWN OF NAGS HEAD 1961
Post Office Box 99
Nags Head, NC 27959

CONSTRUCTION DRAWINGS
SOUTH OREGON INLET ROAD
STORMWATER INFRASTRUCTURE IMPROVEMENTS
AREA 13
Town Of Nags Head | Dare County | North Carolina

NORTH CAROLINA PROFESSIONAL SEAL 047183 ENGINEER DARWICHE EL SABEH 3/5/2025

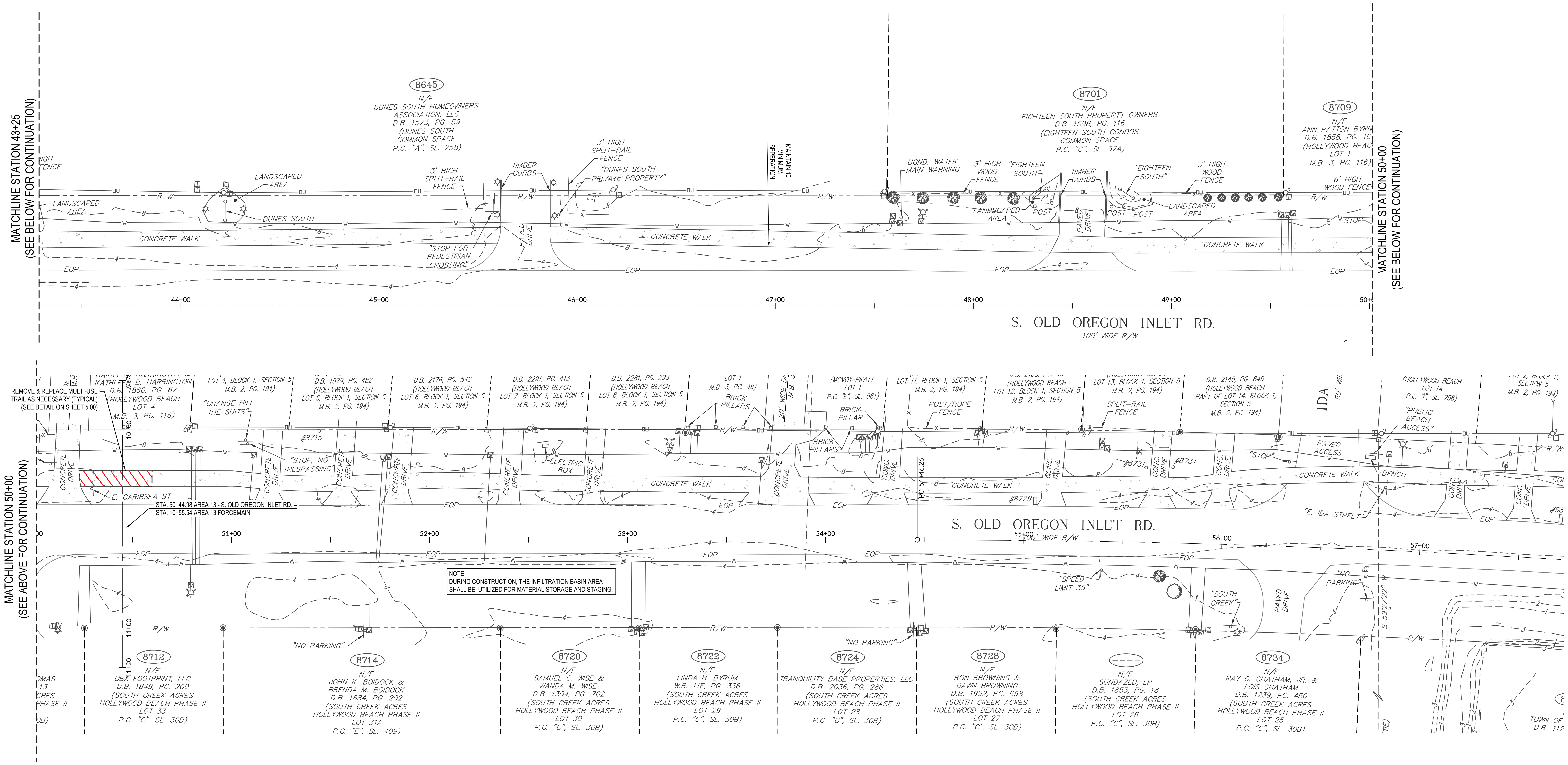
0 15 30
SCALE: 1 inch = 30 ft.

INITIAL PLAN DATE: 02/29/2024
REVISIONS:
01/22/2025

WR JOB NUMBER	03210159.03
DRN: BGB DGN: BGB	CKD: DNS/APH

EXISTING CONDITIONS & DEMOLITION PLAN (1 OF 2)

1.01



NOTES:

TOPOGRAPHIC INFORMATION IS FROM FIELD SURVEY CONDUCTED BY COASTAL ENGINEERING & SURVEYING (KITTY HAWK, NC), AS SHOWN ON DRAWINGS ENTITLED "TOWN OF NAGS HEAD DRAINAGE AREA #13", DATED 7/10/19.

UTILITY LOCATIONS SHOWN ARE BASED ON AVAILABLE INFORMATION AND SHALL BE CONSIDERED APPROXIMATE AND POSSIBLY INCOMPLETE. CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO EXCAVATION.

FIELD CONDITIONS MAY REQUIRE DEVIATION FROM PLAN LOCATION AND TYPICAL SECTION. CONTRACTOR SHALL COORDINATE ALL DEVIATIONS WITH THE TOWN AND THE ENGINEER.

ALL DISTURBED AREAS SHALL BE STABILIZED IN KIND WITH PAVEMENT (CONCRETE OR ASPHALT), SEED & MULCH, OR SOD, WITHIN 7 DAYS OF CESSATION OF CONSTRUCTION ACTIVITIES IN EACH AREA. SEE SHEET 3.0 FOR ADDITIONAL REQUIREMENTS.

PERMANENT GROUND COVER SHALL BE PROVIDED WITHIN 15 WORKING DAYS OR 90 CALENDAR DAYS (WHICHEVER IS SHORTER) FOLLOWING COMPLETION OF CONSTRUCTION.

Know what's below. Call before you dig.

DANGER
Overhead Electrical Power Lines

WithersRavenel
137 S Wilmington Street | Suite 200 | Raleigh, NC 27601
License #: F-1479 | t: 919.469.3340 | www.withersravenel.com
our people • your success

Post Office Box 99
Nags Head, NC 27959

CONSTRUCTION DRAWINGS
SOUTH OREGON INLET ROAD
STORMWATER INFRASTRUCTURE IMPROVEMENTS
AREA 13
Town Of Nags Head | Dare County | North Carolina

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 047183
DARWICHE EL SABEH
3/5/2025

SCALE: 1 inch = 30 ft.

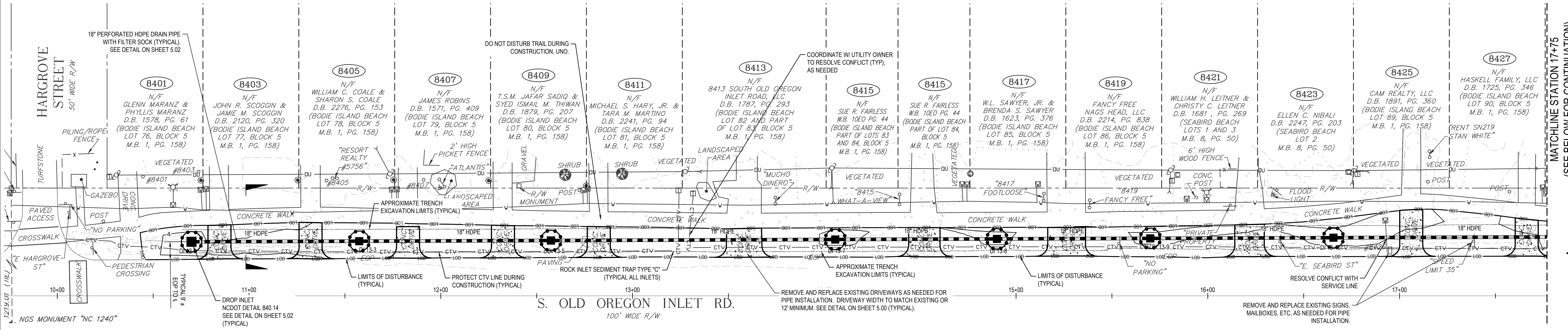
INITIAL PLAN DATE: 02/29/2024
REVISIONS:
01/22/2025

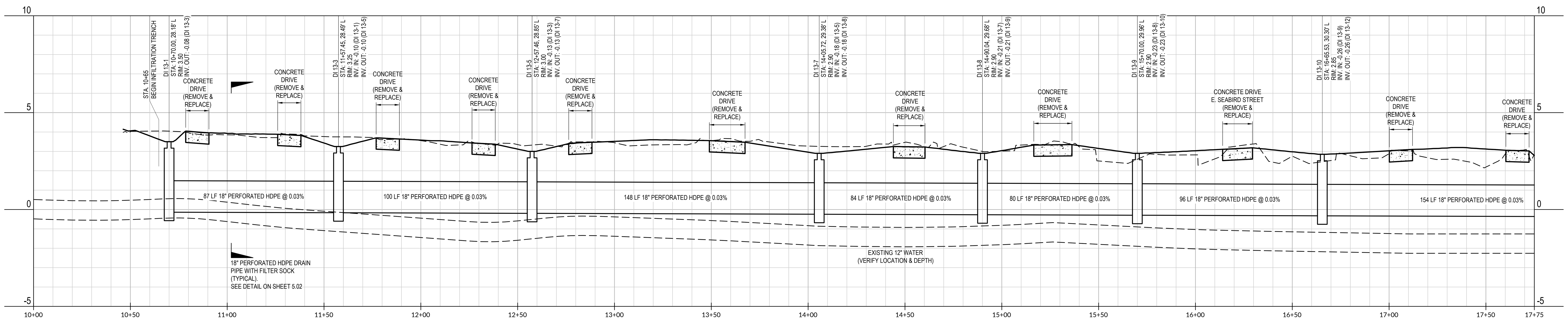
WR JOB NUMBER 03210159.03
DRN: BGB DGN: BGB CKD: DNS/APH

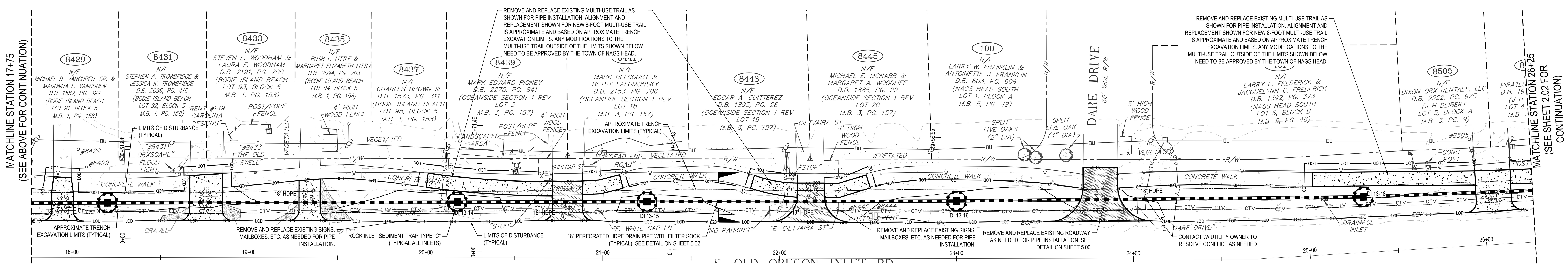
EXISTING CONDITIONS & DEMOLITION PLAN (2 OF 2)

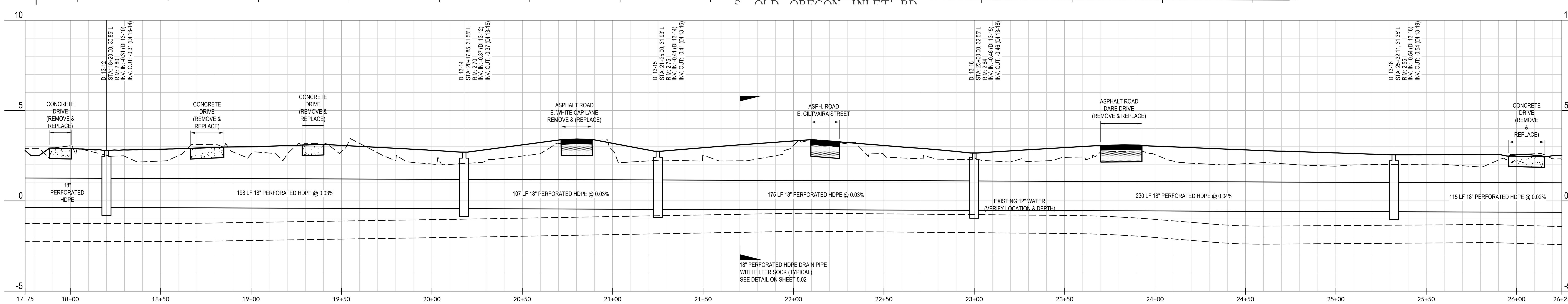
1.02

FINAL DRAWING
FOR REVIEW PURPOSES ONLY
NOT RELEASED FOR CONSTRUCTION









EROSION CONTROL LEGEND

- LIMIT OF DISTURBANCE — LOD
- SILT FENCE — SF
- TEMPORARY INLET PROTECTION

NOTES:

UTILITY LOCATIONS SHOWN ARE BASED ON BEST AVAILABLE INFORMATION AND SHALL BE CONSIDERED APPROXIMATE AND POSSIBLY INCOMPLETE. CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO EXCAVATION.

FIELD CONDITIONS MAY REQUIRE DEVIATION FROM PLAN LOCATION AND TYPICAL SECTION. CONTRACTOR SHALL COORDINATE ALL DEVIATIONS WITH THE TOWN AND THE ENGINEER.

THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL.

ALL DISTURBED AREAS SHALL BE STABILIZED WITH PAVEMENT (IF APPLICABLE), OR SEED & MULCH (OR SOD) WITHIN 7 DAYS OF CESSATION OF CONSTRUCTION ACTIVITIES IN EACH AREA. SEE SHEET 3.00 FOR ADDITIONAL REQUIREMENTS.

PERMANENT GROUND COVER SHALL BE PROVIDED WITHIN 15 WORKING DAYS OR 90 CALENDAR DAYS (WHICHEVER IS SHORTER) FOLLOWING COMPLETION OF CONSTRUCTION.

811 Know what's **below.** **Call** before you dig.

DANGER
Overhead Electrical Power Lines

WithersRavenel
137 S Wilmington Street | Suite 200 | Raleigh, NC 27601
License #: F-1479 | t: 919.469.3340 | www.withersravenel.com
our people • your success

THE TOWN OF NAGS HEAD 1961
Post Office Box 99
Nags Head, NC 27959

CONSTRUCTION DRAWINGS
SOUTH OREGON INLET ROAD
STORMWATER INFRASTRUCTURE IMPROVEMENTS
AREA 13
Town Of Nags Head | Dare County | North Carolina

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 047183 DARWICHE EL SABEH
DocuSigned by: 36BB4898FDE4483...
3/5/2025

SCALE: 1 inch = 30 ft. H
1 inch = 3 ft. V

INITIAL PLAN DATE: 02/29/2024
REVISIONS:
01/22/2025

WR JOB NUMBER 03210159.03
DRN: BGB DGN: BGB CKD: DNS/APH

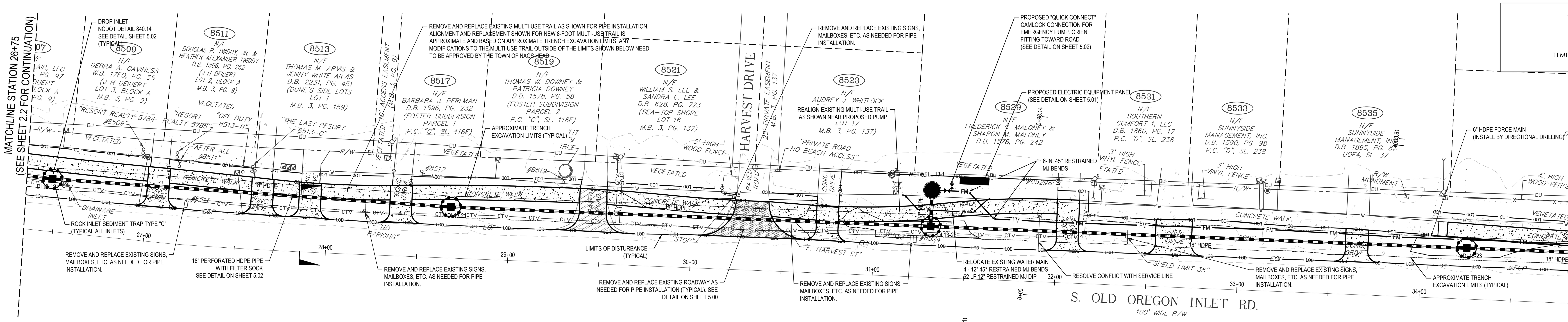
PLAN & PROFILE AREA 13 STA. 10+00 TO STA. 26+25

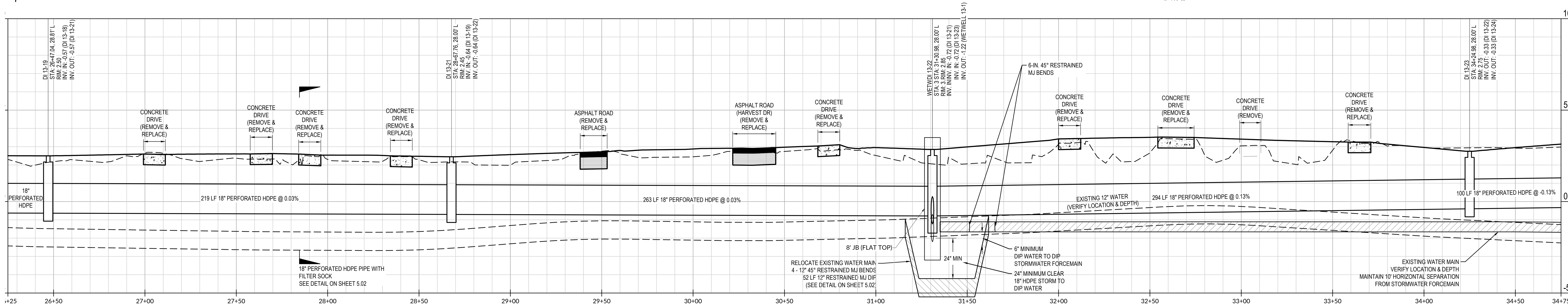
2.01

FINAL DRAWING
FOR REVIEW PURPOSES ONLY
NOT RELEASED FOR CONSTRUCTION

EROSION CONTROL LEGEND

LIMIT OF DISTURBANCE	LOD
SILT FENCE	SF
TEMPORARY INLET PROTECTION	





NOTES:

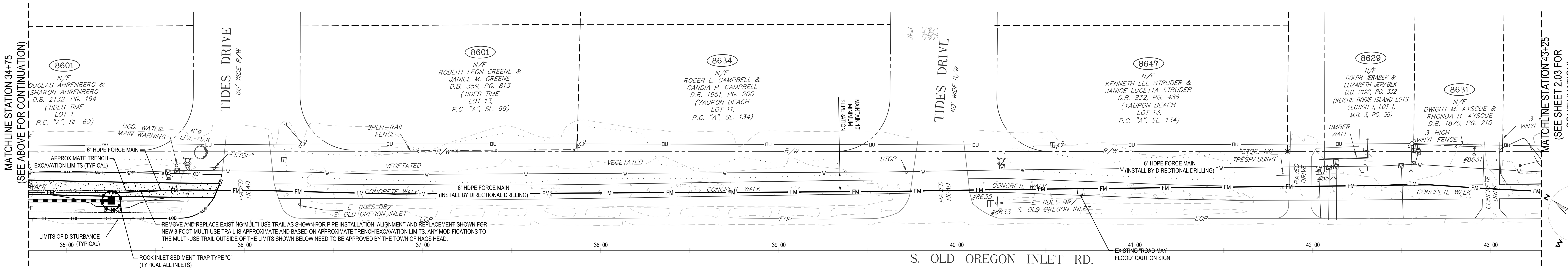
UTILITY LOCATIONS SHOWN ARE BASED ON BEST AVAILABLE INFORMATION AND SHALL BE CONSIDERED APPROXIMATE AND POSSIBLY INCOMPLETE. CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO EXCAVATION.

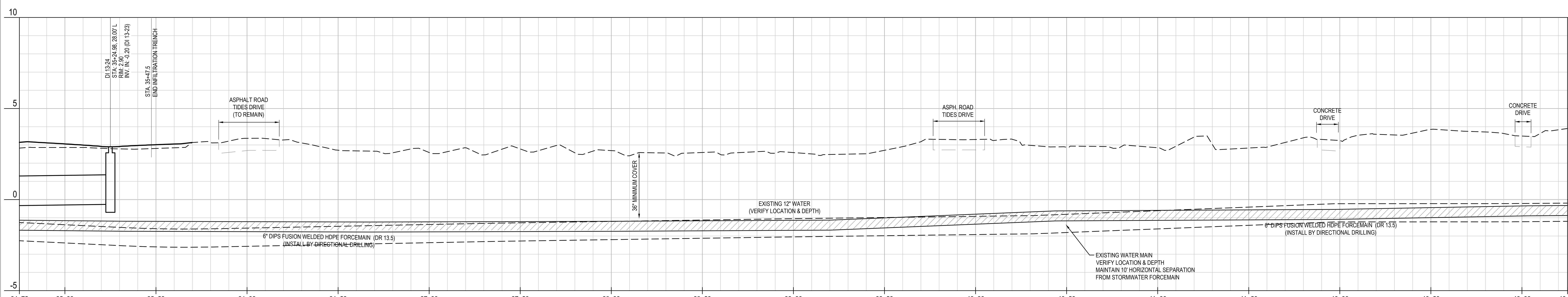
FIELD CONDITIONS MAY REQUIRE DEVIATION FROM PLAN LOCATION AND TYPICAL SECTION. CONTRACTOR SHALL COORDINATE ALL DEVIATIONS WITH THE TOWN AND THE ENGINEER.

THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL.

ALL DISTURBED AREAS SHALL BE STABILIZED WITH PAVEMENT (IF APPLICABLE), OR SEED & MULCH (OR SOD) WITHIN 7 DAYS OF CESSATION OF CONSTRUCTION ACTIVITIES IN EACH AREA. SEE SHEET 3.00 FOR ADDITIONAL REQUIREMENTS.

PERMANENT GROUND COVER SHALL BE PROVIDED WITHIN 15 WORKING DAYS OR 90 CALENDAR DAYS (WHICHEVER IS SHORTER) FOLLOWING COMPLETION OF CONSTRUCTION.





811 Know what's below. Call before you dig.

DANGER
Overhead Electrical Power Lines

FINAL DRAWING
FOR REVIEW PURPOSES ONLY
NOT RELEASED FOR CONSTRUCTION

WithersRavenel
137 S Wilmington Street | Suite 200 | Raleigh, NC 27601
License #: F-1479 | t: 919.469.3340 | www.withersravenel.com
our people • your success

The Town of Nags Head
Post Office Box 99
Nags Head, NC 27959

CONSTRUCTION DRAWINGS
SOUTH OREGON INLET ROAD
STORMWATER INFRASTRUCTURE IMPROVEMENTS
AREA 13

Town Of Nags Head | Dare County | North Carolina

NORTH CAROLINA PROFESSIONAL SEAL 047183 ENGINEER DARWICHE EL SABEH 3/5/2025

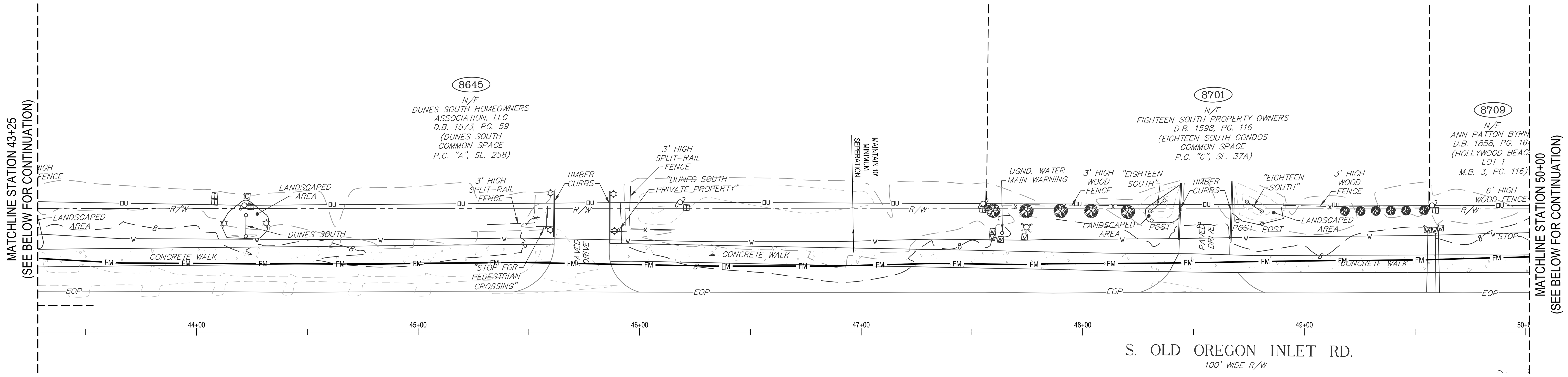
SCALE: 1 inch = 30 ft. H
1 inch = 3 ft. V

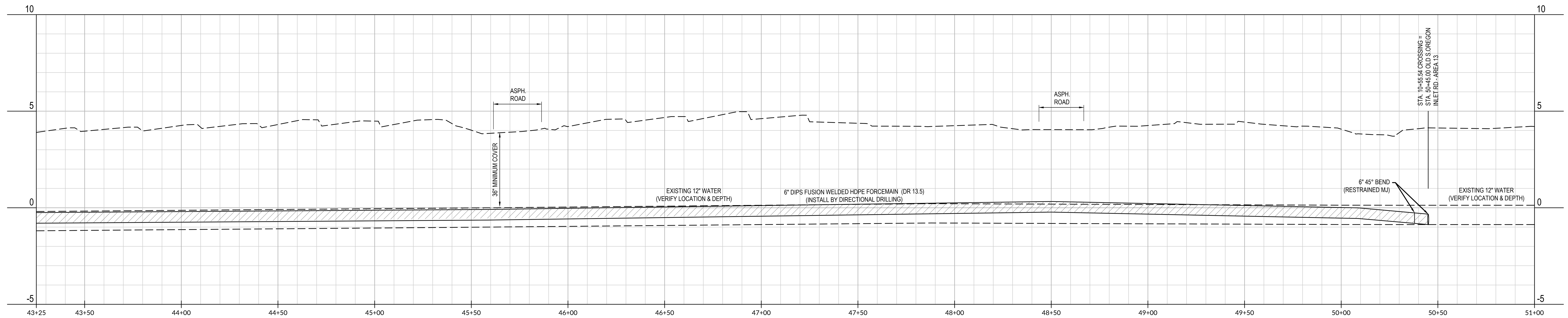
INITIAL PLAN DATE: 02/29/2024
REVISIONS:
01/22/2025

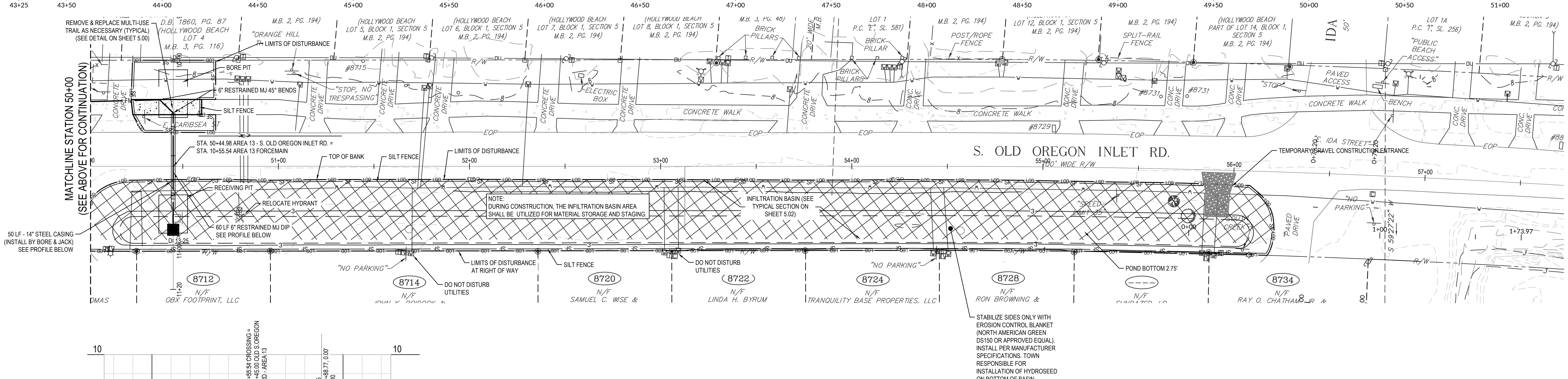
WR JOB NUMBER 03210159.03
DRN: BGB DGN: BGB CKD: DNS/APH

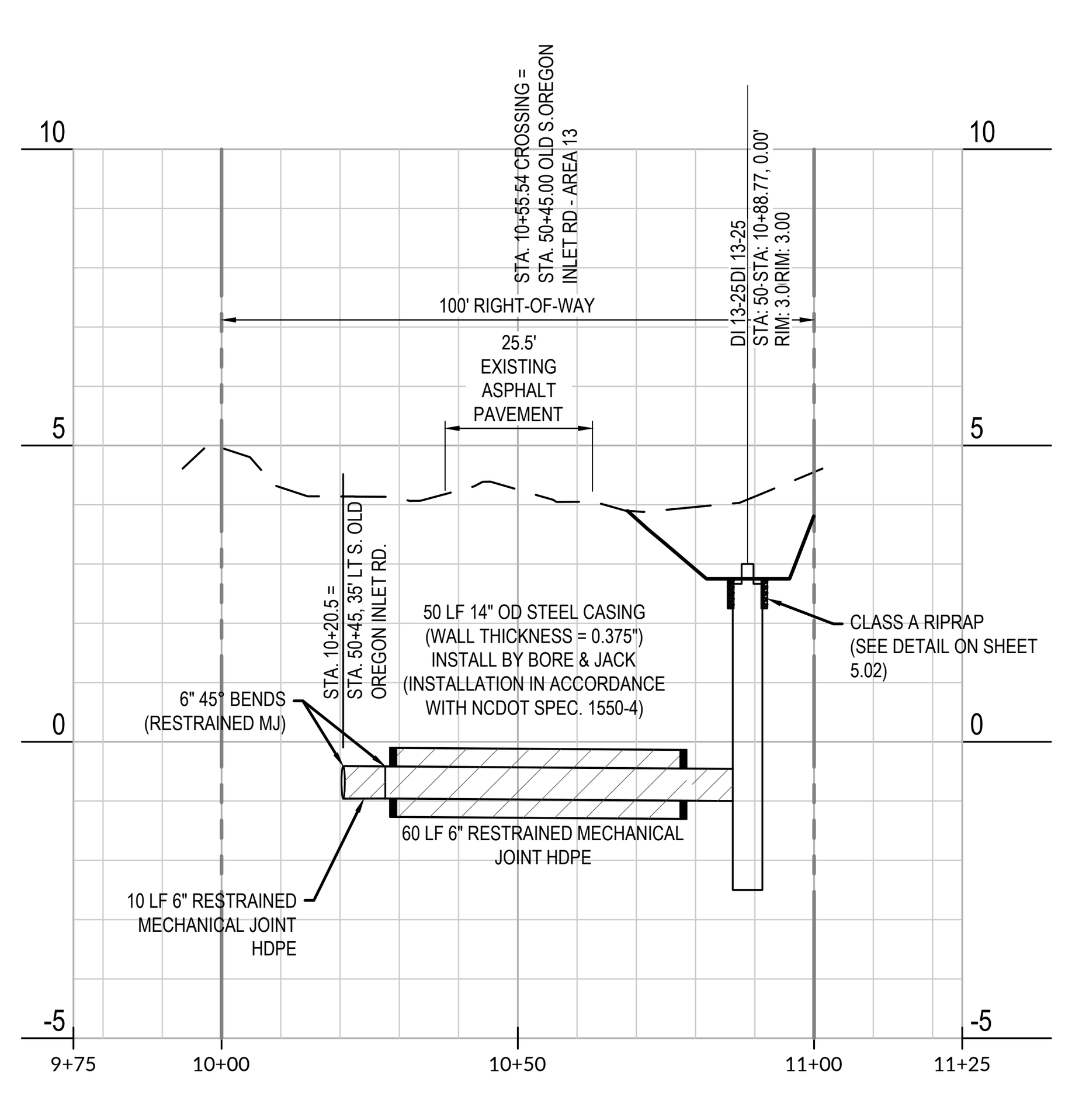
PLAN & PROFILE AREA 13 STA. 26+25 TO STA. 43+25

2.02









EROSION CONTROL LEGEND

LIMIT OF DISTURBANCE	LOD
SILT FENCE	SF
TEMPORARY INLET PROTECTION	
TEMPORARY GRAVEL CONSTRUCTION ENTRANCE	

NOTES:

UTILITY LOCATIONS SHOWN ARE BASED ON BEST AVAILABLE INFORMATION AND SHALL BE CONSIDERED APPROXIMATE AND POSSIBLY INCOMPLETE. CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO EXCAVATION.

FIELD CONDITIONS MAY REQUIRE DEVIATION FROM PLAN LOCATION AND TYPICAL SECTION. CONTRACTOR SHALL COORDINATE ALL DEVIATIONS WITH THE TOWN AND THE ENGINEER.

THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL.

ALL DISTURBED AREAS SHALL BE STABILIZED WITH PAVEMENT (IF APPLICABLE), OR SEED & MULCH (OR SOD) WITHIN 7 DAYS OF CESSATION OF CONSTRUCTION ACTIVITIES IN EACH AREA. SEE SHEET 3.00 FOR ADDITIONAL REQUIREMENTS.

PERMANENT GROUND COVER SHALL BE PROVIDED WITHIN 15 WORKING DAYS OR 90 CALENDAR DAYS (WHICHEVER IS SHORTER) FOLLOWING COMPLETION OF CONSTRUCTION.

811

Know what's below. Call before you dig.

DANGER
Overhead Electrical Power Lines

FINAL DRAWING
FOR REVIEW PURPOSES ONLY
NOT RELEASED FOR CONSTRUCTION

WithersRavenel
137 S Wilmington Street | Suite 200 | Raleigh, NC 27601
License #: F-1479 | t: 919.469.3340 | www.withersravenel.com
our people • your success

THE TOWN OF NAGS HEAD N.C. 1961
Post Office Box 99
Nags Head, NC 27959

CONSTRUCTION DRAWINGS
SOUTH OREGON INLET ROAD
STORMWATER INFRASTRUCTURE IMPROVEMENTS
AREA 13

Town Of Nags Head | Dare County | North Carolina

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 047183 DARWICHE EL SABEH
DocuSigned by: 3/5/2025

SCALE: 1 inch = 30 ft. H
1 inch = 3 ft. V

INITIAL PLAN DATE: 02/29/2024
REVISIONS:
01/22/2025

WR JOB NUMBER 03210159.03
DRN: BGB DGN: BGB CKD: DNS/APH

PLAN & PROFILE
AREA 13 STA. 43+25 TO STA. 57+00

2.03

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION A: SELF-INSPECTION

Self-inspections are required during normal business hours in accordance with the table below. When adverse weather or site conditions would cause the safety of the inspection personnel to be in jeopardy, the inspection may be delayed until the next business day on which it is safe to perform the inspection. In addition, when a storm event of equal to or greater than 1.0 inch occurs outside of normal business hours, the self-inspection shall be performed upon the commencement of the next business day. Any time when inspections were delayed shall be noted in the Inspection Record.

Inspect	Frequency (during normal business hours)	Inspection records must include:
(1) Rain gauge maintained in good working order	Daily	Daily rainfall amounts. If no daily rain gauge observations are made during weekend or holiday periods, and no individual day rainfall information is available, record the cumulative rain measurement for those unattended days (and this will determine if a site inspection is needed). Days on which no rainfall occurred shall be recorded as "zero." The permittee may use another rain-monitoring device approved by the Division.
(2) E&SC Measures	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the measures inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Indication of whether the measures were operating properly, 5. Description of maintenance needs for the measure, 6. Description, evidence, and date of corrective actions taken.
(3) Stormwater discharge outfalls (SDOs)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the discharge outfalls inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Evidence of indicators of stormwater pollution such as oil sheen, floating or suspended solids or discoloration, 5. Indication of visible sediment leaving the site, 6. Description, evidence, and date of corrective actions taken.
(4) Perimeter of site	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	If visible sedimentation is found outside site limits, then a record of the following shall be made: 1. Actions taken to clean up or stabilize the sediment that has left the site limits, 2. Description, evidence, and date of corrective actions taken, and 3. An explanation as to the actions taken to control future releases.
(5) Streams or wetlands onsite or offsite (where accessible)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	If the stream or wetland has increased visible sedimentation or a stream has visible increased turbidity from the construction activity, then a record of the following shall be made: 1. Description, evidence and date of corrective actions taken, and 2. Records of the required reports to the appropriate Division Regional Office per Part III, Section C, Item (2)(a) of this permit.
(6) Ground stabilization measures	After each phase of grading	1. The phase of grading (installation of perimeter E&SC measures, clearing and grubbing, installation of storm drainage facilities, completion of all land-disturbing activity, construction or redevelopment, permanent ground cover). 2. Documentation that the required ground stabilization measures have been provided within the required timeframe or an assurance that they will be provided as soon as possible.

NOTE: The rain inspection resets the required 7 calendar day inspection requirement.

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION B: RECORDKEEPING

1. E&SC Plan Documentation

The approved E&SC plan as well as any approved deviation shall be kept on the site. The approved E&SC plan must be kept up-to-date throughout the coverage under this permit. The following items pertaining to the E&SC plan shall be kept on site and available for inspection at all times during normal business hours.

Item to Document	Documentation Requirements
(a) Each E&SC measure has been installed and does not significantly deviate from the locations, dimensions and relative elevations shown on the approved E&SC plan.	Initial and date each E&SC measure on a copy of the approved E&SC plan or complete, date and sign an inspection report that lists each E&SC measure shown on the approved E&SC plan. This documentation is required upon the initial installation of the E&SC measures or if the E&SC measures are modified after initial installation.
(b) A phase of grading has been completed.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate completion of the construction phase.
(c) Ground cover is located and installed in accordance with the approved E&SC plan.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate compliance with approved ground cover specifications.
(d) The maintenance and repair requirements for all E&SC measures have been performed.	Complete, date and sign an inspection report.
(e) Corrective actions have been taken to E&SC measures.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate the completion of the corrective action.

2. Additional Documentation to be Kept on Site

In addition to the E&SC plan documents above, the following items shall be kept on the site and available for inspectors at all times during normal business hours, unless the Division provides a site-specific exemption based on unique site conditions that make this requirement not practical:

(a) This General Permit as well as the Certificate of Coverage, after it is received.

(b) Records of inspections made during the previous twelve months. The permittee shall record the required observations on the Inspection Record Form provided by the Division or a similar inspection form that includes all the required elements. Use of electronically-available records in lieu of the required paper copies will be allowed if shown to provide equal access and utility as the hard-copy records.

3. Documentation to be Retained for Three Years

All data used to complete the e-NOI and all inspection records shall be maintained for a period of three years after project completion and made available upon request. [40 CFR 122.41]

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION C: REPORTING

1. Occurrences that Must be Reported

Permittees shall report the following occurrences:

(a) Visible sediment deposition in a stream or wetland.

(b) Oil spills if:
- They are 25 gallons or more,
- They are less than 25 gallons but cannot be cleaned up within 24 hours,
- They cause sheen on surface waters (regardless of volume), or
- They are within 100 feet of surface waters (regardless of volume).

(c) Releases of hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (Ref: 40 CFR 110.3 and 40 CFR 117.3) or Section 102 of CERCLA (Ref: 40 CFR 302.4) or G.S. 143-215.85.

(d) Anticipated bypasses and unanticipated bypasses.

(e) Noncompliance with the conditions of this permit that may endanger health or the environment.

2. Reporting Timeframes and Other Requirements

After a permittee becomes aware of an occurrence that must be reported, he shall contact the appropriate Division regional office within the timeframes and in accordance with the other requirements listed below. Occurrences outside normal business hours may also be reported to the Department's Environmental Emergency Center personnel at (800) 858-0368.

Occurrence	Reporting Timeframes (After Discovery) and Other Requirements
(a) Visible sediment deposition in a stream or wetland	• ***Within 24 hours***, an oral or electronic notification. • ***Within 7 calendar days***, a report that contains a description of the sediment and actions taken to address the cause of the deposition. Division staff may waive the requirement for a written report on a case-by-case basis. • If the stream is named on the NC 303(d) list as impaired for sediment-related causes, the permittee may be required to perform additional monitoring, inspections or apply more stringent practices if staff determine that additional requirements are needed to assure compliance with the federal or state impaired-waters conditions.
(b) Oil spills and release of hazardous substances per Item 1(b)-(c) above	• ***Within 24 hours***, an oral or electronic notification. The notification shall include information about the date, time, nature, volume and location of the spill or release.
(c) Anticipated bypasses [40 CFR 122.41(m)(3)]	• ***A report at least ten days before the date of the bypass, if possible***. The report shall include an evaluation of the anticipated quality and effect of the bypass.
(d) Unanticipated bypasses [40 CFR 122.41(m)(3)]	• ***Within 24 hours***, an oral or electronic notification. • ***Within 7 calendar days,*** a report that includes an evaluation of the quality and effect of the bypass.
(e) Noncompliance with the conditions of this permit that may endanger health or the environment[40 CFR 122.41(l)(7)]	• ***Within 24 hours***, an oral or electronic notification. • ***Within 7 calendar days***, a report that contains a description of the noncompliance, and its causes; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time noncompliance is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. [40 CFR 122.41(l)(6). • Division staff may waive the requirement for a written report on a case-by-case basis.

PART II, SECTION G, ITEM (4)
DRAW DOWN OF SEDIMENT BASINS FOR MAINTENANCE OR CLOSE OUT

Sediment basins and traps that receive runoff from drainage areas of one acre or more shall use outlet structures that withdraw water from the surface when these devices need to be drawn down for maintenance or close out unless this is infeasible. The circumstances in which it is not feasible to withdraw water from the surface shall be rare (for example, times with extended cold weather). Non-surface withdrawals from sediment basins shall be allowed only when all of the following criteria have been met:

(a) The E&SC plan authority has been provided with documentation of the non-surface withdrawal and the specific time periods or conditions in which it will occur. The non-surface withdrawal shall not commence until the E&SC plan authority has approved these items,
(b) The non-surface withdrawal has been reported as an anticipated bypass in accordance with Part III, Section C, Item (2)(c) and (d) of this permit,
(c) Dewatering discharges are treated with controls to minimize discharges of pollutants from stormwater that is removed from the sediment basin. Examples of appropriate controls include properly sited, designed and maintained dewatering tanks, weir tanks, and filtration systems,
(d) Vegetated, upland areas of the sites or a properly designed stone pad is used to the extent feasible at the outlet of the dewatering treatment devices described in Item (c) above,
(e) Velocity dissipation devices such as check dams, sediment traps, and riprap are provided at the discharge points of all dewatering devices, and
(f) Sediment removed from the dewatering treatment devices described in Item (c) above is disposed of in a manner that does not cause deposition of sediment into waters of the United States.

NCG01 SELF-INSPECTION, RECORDKEEPING AND REPORTING

EFFECTIVE: 04/01/19

GROUND STABILIZATION AND MATERIALS HANDLING PRACTICES FOR COMPLIANCE WITH THE NCG01 CONSTRUCTION GENERAL PERMIT

Implementing the details and specifications on this plan sheet will result in the construction activity being considered compliant with the Ground Stabilization and Materials Handling sections of the NCG01 Construction General Permit (Sections E and F, respectively). The permittee shall comply with the Erosion and Sediment Control plan approved by the delegated authority having jurisdiction. All details and specifications shown on this sheet may not apply depending on site conditions and the delegated authority having jurisdiction.

SECTION E: GROUND STABILIZATION

Required Ground Stabilization Timeframes

Site Area Description	Stabilize within this many calendar days after ceasing land disturbance	Timeframe variations
(a) Perimeter dikes, swales, ditches, and perimeter slopes	7	None
(b) High Quality Water (HQW) Zones	7	None
(c) Slopes steeper than 3:1	7	If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed
(d) Slopes 3:1 to 4:1	14	-7 days for slopes greater than 50' in length and with slopes steeper than 4:1 -7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed
(e) Areas with slopes flatter than 4:1	14	-7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed unless there is zero slope

Note: After the permanent cessation of construction activities, any areas with temporary ground stabilization shall be converted to permanent ground stabilization as soon as practicable but in no case longer than 90 calendar days after the last land disturbing activity. Temporary ground stabilization shall be maintained in a manner to render the surface stable against accelerated erosion until permanent ground stabilization is achieved.

GROUND STABILIZATION SPECIFICATION

Stabilize the ground sufficiently so that rain will not dislodge the soil. Use one of the techniques in the table below:

Temporary Stabilization	Permanent Stabilization
• Temporary grass seed covered with straw or other mulches and tackifiers • Hydroseeding • Rolled erosion control products with or without temporary grass seed • Appropriately applied straw or other mulch • Plastic sheeting	• Permanent grass seed covered with straw or other mulches and tackifiers • Geotextile fabrics such as permanent soil reinforcement matting • Hydroseeding • Shrubs or other permanent plantings covered with mulch • Uniform and evenly distributed ground cover sufficient to restrain erosion • Structural methods such as concrete, asphalt or retaining walls • Rolled erosion control products with grass seed

POLYACRYLAMIDES (PAMS) AND FLOCCULANTS

1. Select flocculants that are appropriate for the soils being exposed during construction, selecting from the *NC DWR List of Approved PAMS/Flocculants*.
2. Apply flocculants at or before the inlets to Erosion and Sediment Control Measures.
3. Apply flocculants at the concentrations specified in the *NC DWR List of Approved PAMS/Flocculants* and in accordance with the manufacturer's instructions.
4. Provide ponding area for containment of treated Stormwater before discharging offsite.
5. Store flocculants in leak-proof containers that are kept under storm-resistant cover or surrounded by secondary containment structures.

EQUIPMENT AND VEHICLE MAINTENANCE

1. Maintain vehicles and equipment to prevent discharge of fluids.
2. Provide drip pans under any stored equipment.
3. Identify leaks and repair as soon as feasible, or remove leaking equipment from the project.
4. Collect all spent fluids, store in separate containers and properly dispose as hazardous waste (recycle when possible).
5. Remove leaking vehicles and construction equipment from service until the problem has been corrected.
6. Bring used fuels, lubricants, coolants, hydraulic fluids and other petroleum products to a recycling or disposal center that handles these materials.

LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE

1. Never bury or burn waste. Place litter and debris in approved waste containers.
2. Provide a sufficient number and size of waste containers (e.g dumpster, trash receptacle) on site to contain construction and domestic wastes.
3. Locate waste containers at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
4. Locate waste containers on areas that do not receive substantial amounts of runoff from upland areas and does not drain directly to a storm drain, stream or wetland.
5. Cover waste containers at the end of each workday and before storm events or provide secondary containment. Repair or replace damaged waste containers.
6. Anchor all lightweight items in waste containers during times of high winds.
7. Empty waste containers as needed to prevent overflow. Clean up immediately if containers overflow.
8. Dispose waste off-site at an approved disposal facility.
9. On business days, clean up and dispose of waste in designated waste containers.

PAINT AND OTHER LIQUID WASTE

1. Do not dump paint and other liquid waste into storm drains, streams or wetlands.
2. Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
3. Contain liquid wastes in a controlled area.
4. Containment must be labeled, sized and placed appropriately for the needs of site.
5. Prevent the discharge of soaps, solvents, detergents and other liquid wastes from construction sites.

PORTABLE TOILETS

1. Install portable toilets on level ground, at least 50 feet away from storm drains, streams or wetlands unless there is no alternative reasonably available. If 50 foot offset is not attainable, provide relocation of portable toilet behind silt fence or place on a gravel pad and surround with sand bags.
2. Provide staking or anchoring of portable toilets during periods of high winds or in high foot traffic areas.
3. Monitor portable toilets for leaking and properly dispose of any leaked material. Utilize a licensed sanitary waste hauler to remove leaking portable toilets and replace with properly operating unit.

EARTHEN STOCKPILE MANAGEMENT

1. Show stockpile locations on plans. Locate earthen-material stockpile areas at least 50 feet away from storm drain inlets, sediment basins, perimeter sediment controls and surface waters unless it can be shown no other alternatives are reasonably available.
2. Protect stockpile with silt fence installed along toe of slope with a minimum offset of five feet from the toe of stockpile.
3. Provide stable stone access point when feasible.
4. Stabilize stockpile within the timeframes provided on this sheet and in accordance with the approved plan and any additional requirements. Soil stabilization is defined as vegetative, physical or chemical coverage techniques that will restrain accelerated erosion on disturbed soils for temporary or permanent control needs.

HERBICIDES, PESTICIDES AND RODENTICIDES

1. Store and apply herbicides, pesticides and rodenticides in accordance with label restrictions.
2. Store herbicides, pesticides and rodenticides in their original containers with the label, which lists directions for use, ingredients and first aid steps in case of accidental poisoning.
3. Do not store herbicides, pesticides and rodenticides in areas where flooding is possible or where they may spill or leak into wells, stormwater drains, ground water or surface water. If a spill occurs, clean area immediately.
4. Do not stockpile these materials onsite.

HAZARDOUS AND TOXIC WASTE

1. Create designated hazardous waste collection areas on-site.
2. Place hazardous waste containers under cover or in secondary containment.
3. Do not store hazardous chemicals, drums or bagged materials directly on the ground.

CONCRETE WASHOUTS

1. Do not discharge concrete or cement slurry from the site.
2. Dispose of, or recycle settled, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.
3. Manage washout from mortar mixers in accordance with the above item and in addition place the mixer and associated materials on impervious barrier and within lot perimeter silt fence.
4. Install temporary concrete washouts per local requirements, where applicable. If an alternate method or product is to be used, contact your approval authority for review and approval. If local standard details are not available, use one of the two types of temporary concrete washouts provided on this detail.
5. Do not use concrete washouts for dewatering or storing defective curb or sidewalk sections. Stormwater accumulated within the washout may not be pumped into or discharged to the storm drain system or receiving surface waters. Liquid waste must be pumped out and removed from project.
6. Locate washouts at least 50 feet from storm drain inlets and surface waters unless it can be shown that no other alternatives are reasonably available. At a minimum, install protection of storm drain inlet(s) closest to the washout which could receive spills or overflow.
7. Locate washouts in an easily accessible area, on level ground and install a stone entrance pad in front of the washout. Additional controls may be required by the approving authority.
8. Install at least one sign directing concrete trucks to the washout within the project limits. Post signage on the washout itself to identify this location.
9. Remove leavings from the washout when at approximately 75% capacity to limit overflow events. Replace the tarp, sand bags or other temporary structural components when no longer functional. When utilizing alternative or proprietary products, follow manufacturer's instructions.
10. At the completion of the concrete work, remove remaining leavings and dispose of in an approved disposal facility. Fill pit, if applicable, and stabilize any disturbance caused by removal of washout.
11. See detail this sheet.

NCG01 GROUND STABILIZATION AND MATERIALS HANDLING

EFFECTIVE: 04/01/19

STABILIZATION REQUIREMENTS:

Stabilization for this project shall comply with the time frame guidelines as specified by the NCG-010000 general construction permit effective April 1, 2019 issued by the North Carolina Department of Environmental Quality Division of Water Resources. Temporary or permanent ground cover stabilization shall occur within 7 calendar days from the last land-disturbing activity, with the following exceptions in which temporary or permanent ground cover shall be provided in 14 calendar days from the last land-disturbing activity:
- Slopes between 2:1 and 3:1, with a slope length of 10 ft. or less
- Slopes 3:1 or flatter, with a slope of length of 50 ft. or less
- Slopes 4:1 or flatter

The stabilization timeframe for High Quality Water (HQW) Zones shall be 7 calendar days with no exceptions for slope grades or lengths. High Quality Water Zones (HQW) Zones are defined by North Carolina Administrative Code 15A NCAC 04A.0105 (25). Temporary and permanent ground cover stabilization shall be achieved in accordance with the provisions in this contract and as directed.

SEEDING AND MULCHING: (East)

The kinds of seed and fertilizer, and the rates of application of seed, fertilizer, and limestone, shall be as stated below. During periods of overlapping dates, the kind of seed to be used shall be determined. All rates are in pounds per acre.

All Roadway Areas

March 1 - August 31		September 1 - February 28	
50#	Tall Fescue	50#	Tall Fescue
10#	Centipede	10#	Centipede
25#	Bermudagrass (hulled)	35#	Bermudagrass (unhulled)
500#	Fertilizer	500#	Fertilizer
4000#	Limestone	4000#	Limestone

Waste and Borrow Locations

March 1 – August 31		September 1 - February 28	
75#	Tall Fescue	75#	Tall Fescue
25#	Bermudagrass (hulled)	35#	Bermudagrass (unhulled)
500#	Fertilizer	500#	Fertilizer
4000#	Limestone	4000#	Limestone

Note: 50# of Bahiagrass may be substituted for either Centipede or Bermudagrass only upon Engineer's request.

Approved Tall Fescue Cultivars

06 Dust	Escalade	Justice	Serengeti	2nd Millennium
Essential	Kalahari	Shelby	3rd Millennium	Evergreen 2
Kitty Hawk 2000	Sheridan	Apache III	Falcon IV	Legitimate
Signia	Avenger	Falcon NG	Lexington	Silver Hawk
Barlexas	Falcon V	LSD	Sliverstar	
Barlexas II	Faith	Magellan	Shenandoah Elite	Bar Fa
Fat Cat	Matador	Sidewinder	Barrera	Festnova
Millennium SRP	Skyline	Barrington	Fidelity	Monet
Solara	Barrobusto	Finelawn Elite	Mustang 4	Southern Choice II
Barvado	Finelawn Xpress	Ninja 2	Speedway	Biltmore
Finesse II	Ol' Glory	Spyder LS	Bingo	Firebird
Olympic Gold	Sunset Gold	Bizem	Firecracker LS	Padre
Taccoa	Blackwatch	Firenza	Patagonia	Tanzania
Blade Runner II	Five Point	Pedigree	Trio	Bonsai
Focus	Picasso	Tahoe II	Braveheart	Forte
Piedmont	Talladega	Bravo	Garrison	Plantation
Tarheel	Bullseye	Gazelle II	Proseeds 5301	Terrano
Cannavaro	Gold Medallion	Prospect	Titan ltd	Catalyst
Grande 3	Pure Gold	Titanium LS	Cayenne	Greenbrooks
Quest	Tracer	Cessane Rz	Greenkeeper	Raptor II
Traverse SRP	Chipper	Gremlin	Rebel Exeda	Tulsa Time
Cochise IV	Greystone	Rebel Sentry	Turbo	Constitution
Guardian 21	Rebel IV	Turbo RZ	Corgi	Guardian 41
Regiment II	Tuxedo RZ	Corona	Hemi	Regenerate
Ultimate	Coyote	Honky Tonk	Rendition	Venture
Darlington	Hot Rod	Rhambler 2 SRP	Umbrella	Davinci
Hunter	Rembrandt	Van Gogh	Desire	Inferno
Reunion	Watchdog	Dominion	Innovator	Riverside
Wolfpack II	Dynamic	Integrity	RNP	Xtremegreen
Dynasty	Jaguar 3	Rocket	Endeavor	Jamboree
Scorpion				

On cut and fill slopes 2:1 or steeper Centipede shall be applied at the rate of 5 pounds per acre and add 20# of Sericea Lespedeza from January 1 - December 31.

Fertilizer shall be 10-20-20 analysis. A different analysis of fertilizer may be used provided the 1-2-2 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as a 10-20-20 analysis and as directed.

TEMPORARY SEEDING:

Fertilizer shall be the same analysis as specified for Seeding and Mulching and applied at the rate of 400 pounds and seeded at the rate of 50 pounds per acre. Sweet Sudan Grass, German Millet or Browntop Millet shall be used in summer months and Rye Grain during the remainder of the year. The Engineer will determine the exact dates for using each kind of seed.

FERTILIZER TOPDRESSING:

Fertilizer used for topdressing on all roadway areas except slopes 2:1 and steeper shall be 10-20-20 grade and shall be applied at the rate of 500 pounds per acre. A different analysis of fertilizer may be used provided the 1-2-2 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as 10-20-20 analysis and as directed.

Fertilizer used for topdressing on slopes 2:1 and steeper and waste and borrow areas shall be 16-8-8 grade and shall be applied at the rate of 500 pounds per acre. A different analysis of fertilizer may be used provided the 2-1-1 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as 16-8-8 analysis and as directed.

SUPPLEMENTAL SEEDING:

The kinds of seed and proportions shall be the same as specified for Seeding and Mulching, with the exception that no centipede seed will be used in the seed mix for supplemental seeding. The rate of application for supplemental seeding may vary from 25# to 75# per acre. The actual rate per acre will be determined prior to the time of topdressing and the Contractor will be notified in writing of the rate per acre, total quantity needed, and areas on which to apply the supplemental seed. Minimum tillage equipment, consisting of a sod seeder shall be used for incorporating seed into the soil as to prevent disturbance of existing vegetation. A clodbuster (ball and chain) may be used where degree of slope prevents the use of a sod seeder.

MULCHING:

Mulch and tack shall be in accordance with NCDOT Specification Section 1060-5. mulch shall be applied in accordance with NCDOT Specification 1615. An approved rolled erosion control product (RECP), May be used in lieu of straw mulch.

MOWING:

The minimum mowing height on this project shall be 4 inches.

EROSION CONTROL NOTES:

1. See Plan & Profile sheets (Sheets 2.0 through 2.4), for erosion control plan and area specific notes.
2. All disturbed areas shall be prepped and seeded in accordance with Section 1660 of the NCDOT Standard Specifications. Limited areas of the project may require sod installation, at the direction of the Town Engineer. Sodding shall be completed in accordance with Section 1664 of the NCDOT Standard Specifications.
3. See sheet 5.0 for Erosion Control Details.
4. Any area disturbances by contractor not shown on the construction drawings are to be permitted through the appropriate permitting agency.
5. Pursuant to GS 113a-57(2), the angle for graded slopes and fills shall be no greater than the angle that can be retained by vegetative cover or other adequate erosion control device or structure.
6. Provide a rolled erosion control product (RECP) to stabilize disturbed ditches if any signs of scouring are evident even if no RECP has been shown on the construction drawings.
7. No stock or waste piles are allowed within 50' of streams or drainage structures.
8. Where dewatering of trenches, pits, and other excavations becomes necessary the discharge must be diverted to a sediment filter bag before being discharged to the ground.
9. Adequate erosion control measures must be installed, maintained, and adjusted as needed during the demolition or clearing and grubbing phases as well as throughout the life of the project and until permanent vegetation is established.

Self Inspection:
Notification of the Division of Energy, Mining and Land Resources (DEMLR) Sediment and Erosion Control Self-Inspection Program:

The Sedimentation Pollution Control Act was amended in 2006 to require that persons responsible for land-disturbing activities inspect a project after each phase of the project to make sure that the approved erosion and sedimentation control plan is being followed. Rules detailing the documentation of these inspections took effect October 1, 2010. The self-inspection program is separate from the weekly self-monitoring program of the NPDES Stormwater Permit for Construction Activities. The focus of the self-inspection report is the installation and maintenance of erosion and sedimentation control measures according to the approved plan. The inspections must be conducted after each phase of the project, and continued until permanent ground cover is established in accordance with NCGS 113a-54.1 and 15a NCAC 4B.0131.

The self-inspection report form is available from: *https://deq.nc.gov/about/divisions/energy-mineral-land-resources/erosion-sediment-control/forms*.

If you have questions or cannot access the form, please contact DEMLR Washington Regional Office at (252)946-6481.

CONSTRUCTION SEQUENCE

1. Obtain plan approval and Land Disturbing Permit.
2. Schedule and hold preconstruction conference at least one week prior to beginning construction.
3. See Plan & Profile Sheets 2.0 through 2.4 for Erosion Control Plan and Sheet 5.0 for Erosion Control Details.
4. Install Temporary Silt Fence along right of way adjacent to existing multi-use trail to remain or proposed multi-use trail to be replaced (See ESee Plan & Profile Sheets 2.0 through 2.4).
5. Install Temporary Gravel Construction Entrance as shown on the plans.

Note:
During construction of the infiltration trench, pump stations, and force mains, the infiltration basin area shall be utilized for material storage and staging.

6. The contractor is responsible for the design and execution of a dewatering plan. **All discharge from any dewatering activities shall made through approved sediment filter bags, in a manner to prevent damage to property or discharge onto or across streets or roads.**
7. Working in a linear manner, excavate, install, and backfill infiltration trench and install inlets as shown on the plan.
8. As work progresses, remove and replace driveways as indicated on the plan.
9. Install sod, or seed and mulch areas as they are brought to finished grade in accordance with schedule on this sheet.
10. Install and maintain Inlet Protection Devices at all inlets.
11. As infiltration trench and driveway construction progresses, install Temporary Silt Fence along the edge of pavement.
12. When construction of infiltration trenches, pump stations, and force mains is substantially complete, excavate and fine grade Infiltration Basin of Area 13 and install sod, or seed and mulch as the area is brought to finished grade in accordance with schedule on this sheet.
13. Inspect all erosion and sediment control devices weekly and after each rainfall event. Remove accumulated sediment when devices reach capacity and repair any damaged immediately.
14. When all areas have been brought to finished grade and stabilized, call for inspection.
15. When site is approved, remove all temporary sediment and erosion control devices and stabilize any resulting disturbed areas.

Disturbed Area:

Area 13	54,171 SF	1.24 Acres

DANGER
Overhead Electrical Power Lines

811
Know what's below. Call before you dig.

FINAL DRAWING
FOR REVIEW PURPOSES ONLY
NOT RELEASED FOR CONSTRUCTION

WithersRavenel
137 S Wilmington Street | Suite 200 | Raleigh, NC 27601
License #: F-1479 | t: 919.469.3340 | www.withersravenel.com
our people • your success

THE TOWN OF NAGS HEAD 1961
Post Office Box 99
Nags Head, NC 27959

CONSTRUCTION DRAWINGS
SOUTH OREGON INLET ROAD
STORMWATER INFRASTRUCTURE IMPROVEMENTS
AREA 13
Town Of Nags Head | Dare County | North Carolina

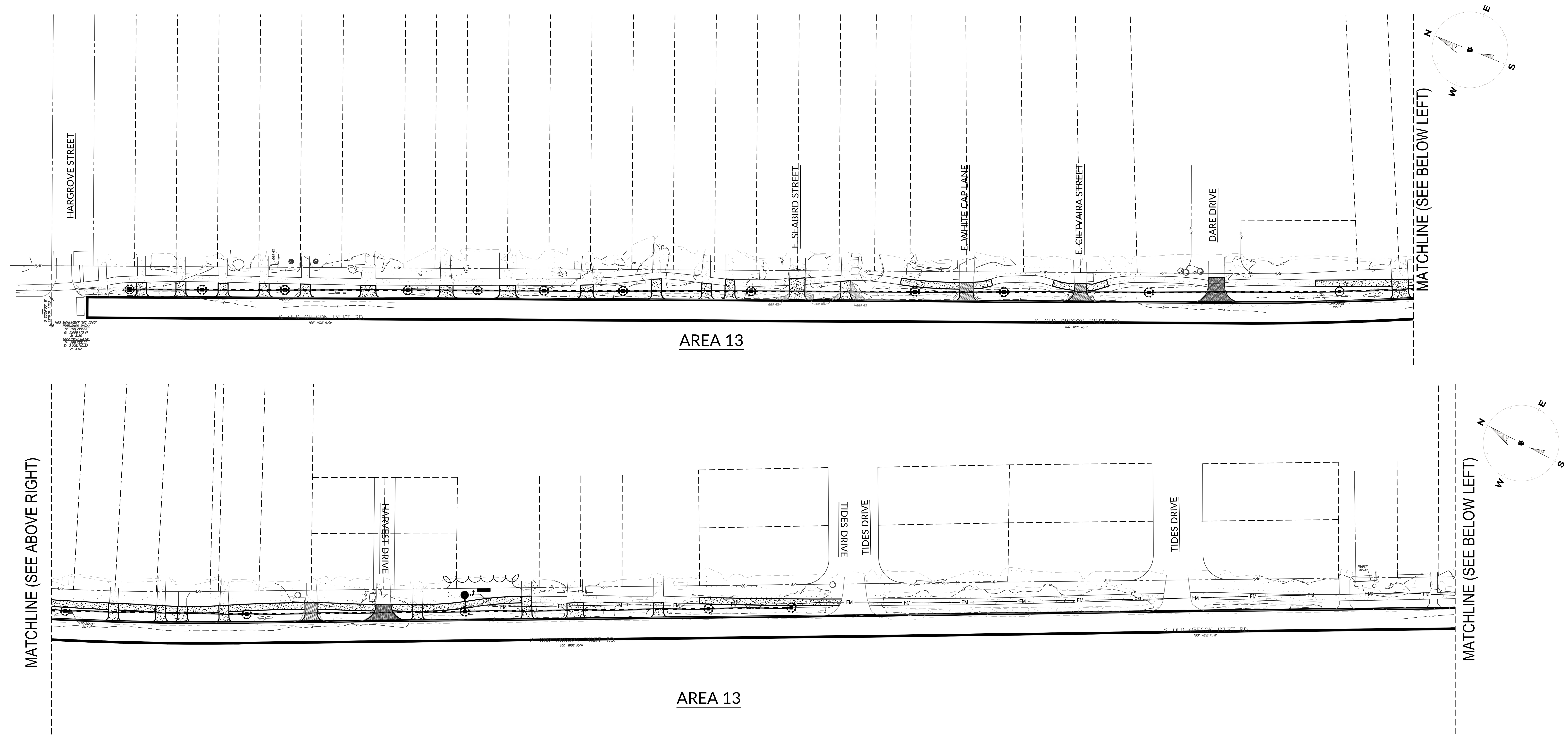
NORTH CAROLINA PROFESSIONAL SEAL 047183 ENGINEER DARWICHE EL SABEH
3/5/2025

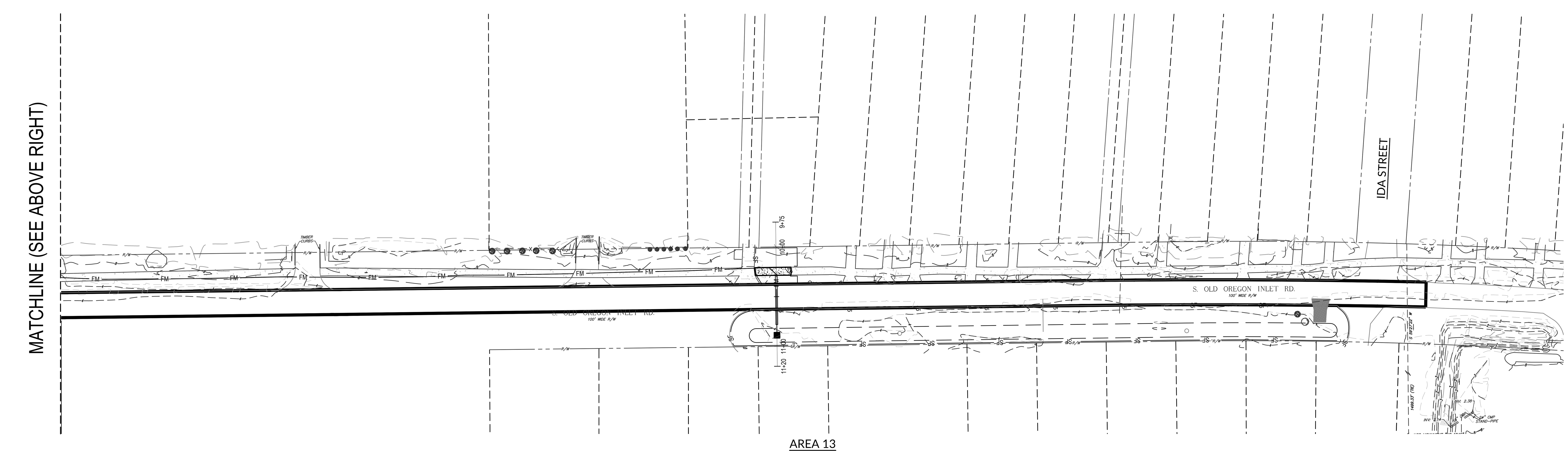
INITIAL PLAN DATE: 02/29/2024
REVISIONS:
01/22/2025

WR JOB NUMBER	03210159.03
DRN: BGB DGN: BGB CKD: DNS/APH	

EROSION CONTROL NOTES

3.00





NOTES:

1. WORK ZONE SIGNS PER NCDOT STANDARD DETAIL 1101.02 SHEET 1 OF 14 REQUIRED.
2. CONTRACTOR SHALL CLOSE ROADWAY SHOULDER IN ACCORDANCE WITH NCDOT STANDARD DETAIL 1101.04 SHEET 1 IN CONSTRUCTION AREA DAILY.
3. CONSTRUCTION SHALL CLOSE 1 LANE PER NCDOT STANDARD DETAIL 1101.02 SHEET 1 OF 14 TO INSTALL CROSS PIPES. APPROPRIATE TRAFFIC CONTROL MEASURES, INCLUDING FLAGGING, SHALL BE USED TO MAINTAIN TRAFFIC FLOW DURING CONSTRUCTION. SEE NCDOT STANDARD DETAIL 1150.01.
4. ALL TRENCHES SHALL BE FILLED AT THE END OF CONSTRUCTION EACH DAY.

DANGER
Overhead Electrical Power Lines

811 ®
Know what's **below.**
Call before you dig.

FINAL DRAWING
FOR REVIEW PURPOSES ONLY
NOT RELEASED FOR CONSTRUCTION

WithersRavenel
137 S Wilmington Street | Suite 200 | Raleigh, NC 27601
License #: F-1479 | t: 919.469.3340 | www.withersravenel.com
our people • your success

THE TOWN OF NAGS HEAD 1961
Post Office Box 99
Nags Head, NC 27959

CONSTRUCTION DRAWINGS
SOUTH OREGON INLET ROAD
STORMWATER INFRASTRUCTURE IMPROVEMENTS
AREA 13

Town Of Nags Head | Dare County | North Carolina

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 047183 DARWICHE EL SABEH 3/5/2025

SCALE: 1 inch = 60 ft.

INITIAL PLAN DATE: 02/29/2024
REVISIONS:
01/22/2025

WR JOB NUMBER 03210159.03
DRN: BGB DGN: BGB CKD: DNS/APH

TRAFFIC CONTROL PLAN

4.00

EST. 1983

TRAFFIC CONTROL GENERAL NOTES:

THE FOLLOWING GENERAL NOTES SHALL APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT, EXCEPT WHEN OTHERWISE NOTED IN THE PLAN, OR DIRECTED BY THE ENGINEER PER THE ENCROACHMENT AGREEMENT LOCATED ON THE PROJECT SPECIFICATIONS.

A. THE TRAFFIC CONTROL PLANS FOR THIS PROJECT CONSIST OF DETAIL DRAWINGS, STANDARD DETAIL DRAWINGS, AND NORTH CAROLINA DEPARTMENT OF TRANSPORTATION (NCDOT) ROADWAY STANDARD DRAWINGS SHOWING TRAFFIC CONTROL DEVICES TO BE USED WHERE VARIOUS TYPES OF CONSTRUCTION ACTIVITIES ARE OCCURRING ON THE PROJECT. THESE DRAWINGS ARE FOR TYPICAL SITUATIONS AND SHOULD BE ADAPTED TO THE ACTUAL FIELD CONDITIONS, SUCH AS WHEN PHYSICAL DIMENSIONS ARE NOT ATTAINABLE, OR WHEN MORE THAN ONE DRAWING IS APPLIED SIMULTANEOUSLY RESULTING IN DUPLICATE SIGNING, OR UNDESIRED OVERLAPPING OF DEVICES. WHEN THESE SITUATIONS ARISE, THE CONTRACTOR AT THE DIRECTION OF THE ENGINEER SHALL BE RESPONSIBLE FOR ADAPTING THE TRAFFIC CONTROL PLAN TO FIELD CONDITIONS TO PROVIDE SAFE AND EFFICIENT TRAFFIC MOVEMENT. MODIFICATIONS MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES.

B. INGRESS AND EGRESS SHALL BE MAINTAINED TO ALL PROPERTIES ALONG THE PROJECT AT ALL TIMES. SPECIAL ATTENTION SHALL BE PAID TO FIRE HYDRANTS SO THAT ACCESS TO THE HYDRANTS ARE NOT OBSTRUCTED.

C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL AND SHALL ADHERE TO THE PROVISIONS OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) (MOST CURRENT EDITION).

D. TRAFFIC CONTROL DEVICES MUST BE IN PLACE AT ALL TIMES DURING CONSTRUCTION.

PEDESTRIAN TEMPORARY DETOURS AND DIVERSION NOTES:

E. CONTRACTOR SHALL PROVIDE FOR THE SAFE PASSAGE OF PEDESTRIANS THROUGH THE CONSTRUCTION SITE WHEN IT IS NECESSARY TO CLOSE THE EXISTING SIDEWALK.

F. WHEN SIDEWALKS, CROSSWALKS OR OTHER PEDESTRIAN PATHWAYS ARE CLOSED TEMPORARY FACILITIES SHALL BE CLEARLY MARKED AND INCLUDE ACCESSIBILITY FEATURES CONSISTENT WITH THE FEATURES PRESENT IN THE EXISTING PEDESTRIAN FACILITIES.

G. TEMPORARY PEDESTRIAN PATHWAYS SHALL BE A FIRM STABLE, SLIP RESISTANCE SURFACE. THE PATHWAY SHALL BE CONSTRUCTED OF CONCRETE, ASPHALT OR NON SLIP STEEL PLATE. GRANULAR SURFACE FOR SHORT TERM TEMPORARY PEDESTRIAN PATHWAY IS ACCEPTABLE.

H. DIFFERENCES IN PATHWAY LEVELS SHALL NOT EXCEED ½-INCH. CHANGES IN LEVELS UP TO 1/4-INCH MAY BE VERTICAL AND WITHOUT EDGE TREATMENT. LEVEL CHANGES BETWEEN 1/4-INCH TO 1/2-INCH SHALL BE BEVELED AT 1:2 MINIMUM. THE BEVEL SHALL BE APPLIED ACROSS THE ENTIRE LEVEL CHANGE. LEVEL CHANGES GREATER THAN ½-INCH SHALL BE ACCOMPLISHED BY MEANS OF A 12:1 MAX RAMP OR IN ACCORDANCE WITH THE TOWN OF NAGS HEAD STANDARDS.

I. WHERE PEDESTRIAN PATHWAYS ARE EXPOSED TO ADJACENT CONSTRUCTION, EXCAVATION DROP-OFFS, TRAFFIC OR OTHER HAZARDS, IT SHALL BE PROTECTED WITH A PEDESTRIAN BARRICADE OR CHANNELIZING DEVICES.

J. PEDESTRIANS ROUTED INTO NORMAL AUTOMOBILE TRAFFIC LANES SHALL BE PROTECTED FROM TRAFFIC USING PEDESTRIAN BARRICADES OR CHANNELIZING DEVICES.

K. PEDESTRIAN BARRICADES OR CHANNELIZING DEVICES SHALL BE CONTINUOUS, IMMOVABLE, STABLE, RIGID, AND VISIBLE BARRIER THAT IS FREE OF SPLINTERED, JAGGED, AND SHARP SURFACES AND EDGES. CAUTION TAPES, CONES, DRUMS, SAWHORSES, AND A-FRAMES ARE NOT CONSIDERED EFFECTIVE SUBSTITUTIONS FOR THIS PURPOSE.

L. DURING WORKING HOURS, AT LEAST ONE WORKER SHALL BE ASSIGNED THE RESPONSIBILITY TO ESCORT ELDERLY, DISABLED OR ANY PEDESTRIAN IN NEED OF ASSISTANCE THROUGH THE CONSTRUCTION SITE. THE WORKER ASSIGNED THIS RESPONSIBILITY MAY ALSO PARTICIPATE IN OTHER CONSTRUCTION ACTIVITIES HOWEVER, THE ASSIGNED WORKER SHALL BE AWARE OF HIS OR HER RESPONSIBILITY FOR PROVIDING PEDESTRIAN ASSISTANCE.

M. PEDESTRIAN PATHWAYS SHALL BE REESTABLISHED AT THE END OF EACH WORK DAY OPERATIONS AND DURING CONSTRUCTION INACTIVITY, UNLESS OTHERWISE INDICATED IN THE PHASING PLAN.

N. CONTRACTOR TO MAINTAIN ACCESS TO TRANSIT STOPS FOR BOTH PEDESTRIANS AND BUSES.

TIME RESTRICTIONS

O. ANY NIGHT WORK PERFORMED BY THE CONTRACTOR SHALL BE LIGHTED IN ACCORDANCE WITH NCDOT AND MUTCD STANDARDS. ALL NIGHT WORK MUST MEET THE REQUIREMENTS OF LOCAL ORDINANCES.

LANE CLOSURE REQUIREMENTS

P. LANE CLOSURES SHALL BE REMOVED AS SOON AS PRACTICAL AFTER WORK BEHIND THE CLOSURE IS COMPLETED OR WHEN A LANE CLOSURE IS NO LONGER NEEDED.

Q. THE CONTRACTOR SHALL CLOSE THE OPEN TRAVEL LANE ADJACENT TO WORK AREA WHEN PERSONNEL OR EQUIPMENT ARE WORKING WITHIN 10 FEET OF AN OPEN TRAVEL LANE. USE ROADWAY STANDARD NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY GUARDRAIL OR BARRIER.

R. CONTRACTOR SHALL MAINTAIN EXISTING TRAFFIC PATTERNS AND LANE CONFIGURATIONS AT THE END OF EACH DAYS OPERATION AND DURING CONSTRUCTION INACTIVITY, EXCEPT AS OTHERWISE INDICATED IN THE PHASING PLAN.

S. CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL FOR APPROPRIATE LANE CLOSURES FOR SURVEYING PERFORMED BY THE OWNER OR OWNER'S REPRESENTATIVE.

PAVEMENT EDGE DROP OFF REQUIREMENTS

T. THE MAXIMUM DIFFERENCE IN ELEVATION BETWEEN OPEN TRAVEL LANES SHALL BE 1.5 INCHES.

U. THE CONTRACTOR SHALL BACKFILL AT A 6:1 SLOPE TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN THE AREAS ADJACENT TO AN OPEN TRAVEL LANE THAT HAS A DROP OFF THAT EXCEEDS 2-INCHES. WHEN THE BASE COURSE HAS NOT BEEN PLACED AND BACKFILL IS REQUIRED, THE CONTRACTOR SHALL BACKFILL WITH COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE OWNER. WHEN THE BASE COURSE HAS BEEN PLACED AND BACKFILL IS REQUIRED, THE CONTRACTOR SHALL BACKFILL WITH ABC AT NO EXPENSE TO THE OWNER.

SIGNING

V. EXISTING TRAFFIC SIGNAGE SHALL BE MOVED OR OTHERWISE MAINTAINED BY THE CONTRACTOR AS APPROPRIATE DURING CONSTRUCTION.

W. ALL NECESSARY TRAFFIC CONTROL SIGNING SHALL BE IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

X. WHEN LANE CLOSURES ARE NOT IN EFFECT, CHANNELIZING DEVICES IN WORK AREAS SHALL BE SPACED NO GREATER THAN TWICE THE POSTED SPEED LIMIT, EXCEPT 10-FEET ON CENTER IN RADII, AND SHALL BE SET 3' OFF THE EDGE OF AN OPEN TRAVEL WAY.

TRAFFIC CONTROL PHASING:

THE CONTRACTOR SHALL FOLLOW THE CONSTRUCTION PROCEDURE FOR MAINTENANCE OF TRAFFIC AS SHOWN IN THE TRAFFIC CONTROL PLAN. THE CONTRACTOR SHALL COMPLETE THE REQUIREMENTS OF EACH CONSTRUCTION PHASE IN SEQUENCE. WHEN A CONSTRUCTION PHASE IS DIVIDED INTO STEPS THE CONTRACTOR SHALL COMPLETE THE REQUIREMENTS OF EACH STEP IN SEQUENCE (EXAMPLE: THE REQUIREMENTS OF PHASE I SHALL BE COMPLETED BEFORE PROCEEDING TO PHASE II; THE REQUIREMENTS FOR STEP I OF PHASE I SHALL BE COMPLETED BEFORE PROCEEDING TO STEP 2 OF PHASE I). WHEN A DESIGNATION TO BEGIN CERTAIN WORK HAS BEEN MADE IN THE PHASING, THE CONTRACTOR WILL HAVE MET THE REQUIREMENTS ONCE THE WORK IS BEGUN AND MAY CONTINUE TO OTHER STEPS OR PHASES AS REQUIRED. WHEN A DESIGNATION TO COMPLETE CERTAIN WORK HAS BEEN MADE, THE CONTRACTOR MAY PROCEED TO OTHER STEPS OR PHASES AS REQUIRED ONLY ONCE THE DESCRIBED WORK IS COMPLETED. ALL WORK DESCRIBED IN THE PROJECT PHASING SHALL BE PREFORMED BY THE CONTRACTOR EXCEPT WHERE IT IS SPECIFIED FOR CERTAIN WORK TO **BE PERFORMED BY OTHERS.**

PAVEMENT MARKINGS AND MARKERS

1. THE CONTRACTOR SHALL REINSTALL THERMOPLASTIC PAVEMENT MARKINGS AND RAISED REFLECTIVE PAVEMENT MARKERS ON THE FINAL SURFACE IN PAVEMENT REPAIR AREAS AS NEEDED. THE CONTRACTOR SHALL CONTACT THE NCDOT AND/OR THE TOWN OF NAGS HEAD, AS APPLICABLE, A MINIMUM OF 48 HOURS PRIOR TO THE COMPLETION OF ANY PREMARKING FOR FINAL PAVEMENT MARKINGS TO ARRANGE FOR AN INSPECTION OF THE PROPOSED MARKING ALIGNMENT.
2. TEMPORARY PAVEMENT MARKINGS, IF NEEDED, SHALL BE INSTALLED AND MAINTAINED BY THE CONTRACTOR DURING THE COURSE OF CONSTRUCTION, UNTIL PERMANENT MARKINGS ARE COMPLETE, AT NO EXPENSE TO THE OWNER.
3. THE CONTRACTOR SHALL ADJUST PROPOSED PAVEMENT MARKING LINES AS NEEDED TO MEET EXISTING PAVEMENT MARKING LINES.

TRAFFIC CONTROL SEQUENCE:

INGRESS AND EGRESS SHALL BE MAINTAINED TO ALL PROPERTIES ALONG THE PROJECT AT THE END OF EVERY WORK DAY. RESIDENTS SHALL BE CONTACTED A MINIMUM OF 24 HOURS PRIOR TO WORK BEGINNING THAT WILL INTERRUPT DRIVEWAY ACCESS DURING THE DAY.

THE FOLLOWING STREETS SHALL BE CLOSED USING NCDOT STANDARD DRAWING 1101.03, TEMPORARY ROAD CLOSURES:

THE FOLLOWING AREAS SHALL BE CLOSED AS NEEDED USING NCDOT STANDARD DRAWING 1101.02, TEMPORARY LANE CLOSURES, AND 1101.04, TEMPORARY SHOULDER CLOSURES:

SOUTH OLD OREGON INLET ROAD - PROJECT AREA #13:

STEP 1: USING NCDOT STANDARD DRAWING 1101.02, TEMPORARY LANE CLOSURES, AND 1101.04, TEMPORARY SHOULDER CLOSURES,THE CONTRACTOR SHALL WORK IN A CONTINUOUS MANNER TO CONSTRUCT THE PROPOSED INFILTRATION TRENCHES AND PIPE CROSSINGS ALONG **SOUTH OLD OREGON INLET ROAD**.

FINAL DRAWING
FOR REVIEW PURPOSES ONLY
NOT RELEASED FOR CONSTRUCTION

WithersRavenel
137 S Wilmington Street | Suite 200 | Raleigh, NC 27601
License #: F-1479 | t: 919.469.3340 | www.withersravenel.com
our people • your success

Post Office Box 99
Nags Head, NC 27959

CONSTRUCTION DRAWINGS
SOUTH OREGON INLET ROAD
STORMWATER INFRASTRUCTURE IMPROVEMENTS
AREA 13

Town Of Nags Head | Dare County | North Carolina

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 047183 DARWICHE EL SABEH
3/5/2025

INITIAL PLAN DATE: 02/29/2024
REVISIONS:
01/22/2025

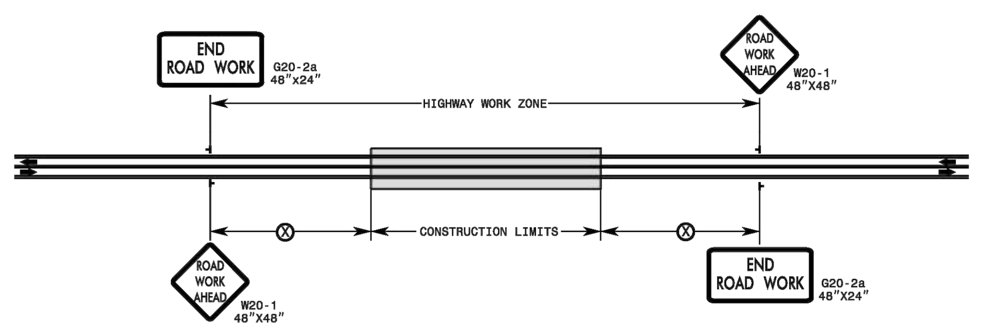
WR JOB NUMBER 03210159.03
DRN: BGB DGN: BGB CKD: DNS/APH

TRAFFIC CONTROL NOTES

4.01

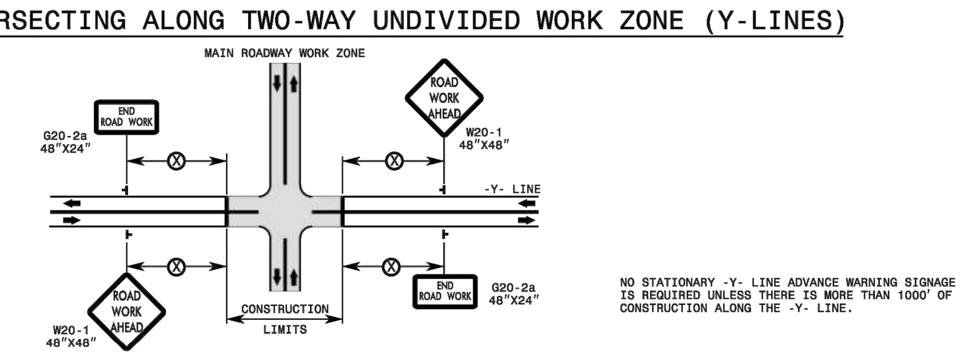
EST. 1983

TWO-WAY UNDIVIDED (L-LINES)



POSTED SPEED LIMIT (MPH)	RECOMMENDED MINIMUM SIGN SPACING Ⓧ
≤ 50	500'
55	1000'

ROADWAYS INTERSECTING ALONG TWO-WAY UNDIVIDED WORK ZONE (Y-LINES)



NO STATIONARY -Y- LINE ADVANCE WARNING SIGNAGE IS REQUIRED UNLESS THERE IS MORE THAN 1000' OF CONSTRUCTION ALONG THE -Y- LINE.

GENERAL NOTES

1- DO NOT INSTALL ADVANCE WARNING SIGNS MORE THAN 3 DAYS PRIOR TO BEGINNING OF WORK UNLESS COVERED.

2- SIGNS SHOWN ARE REQUIRED FOR WORK ZONES THAT WILL REMAIN IN EFFECT LONGER THAN 3 CONSECUTIVE DAYS.

3- ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE, FIELD ADJUST AS NECESSARY OR AS DIRECTED.

4- ERECT SIGNS PER RSD 1110.01. PAYMENT FOR WOOD POSTS, 3LB STEEL U-CHANNEL AND SQUARE STEEL TUBING POSTS WITH SIGNS WILL BE MADE ACCORDING TO STANDARD SPECIFICATIONS FOR WORK ZONE SIGNS.

5- WHEN NECESSARY, USE SPLICING IN ACCORDANCE WITH RSD. 1110.01.

6- DO NOT BACK BRACE SIGN SUPPORTS.

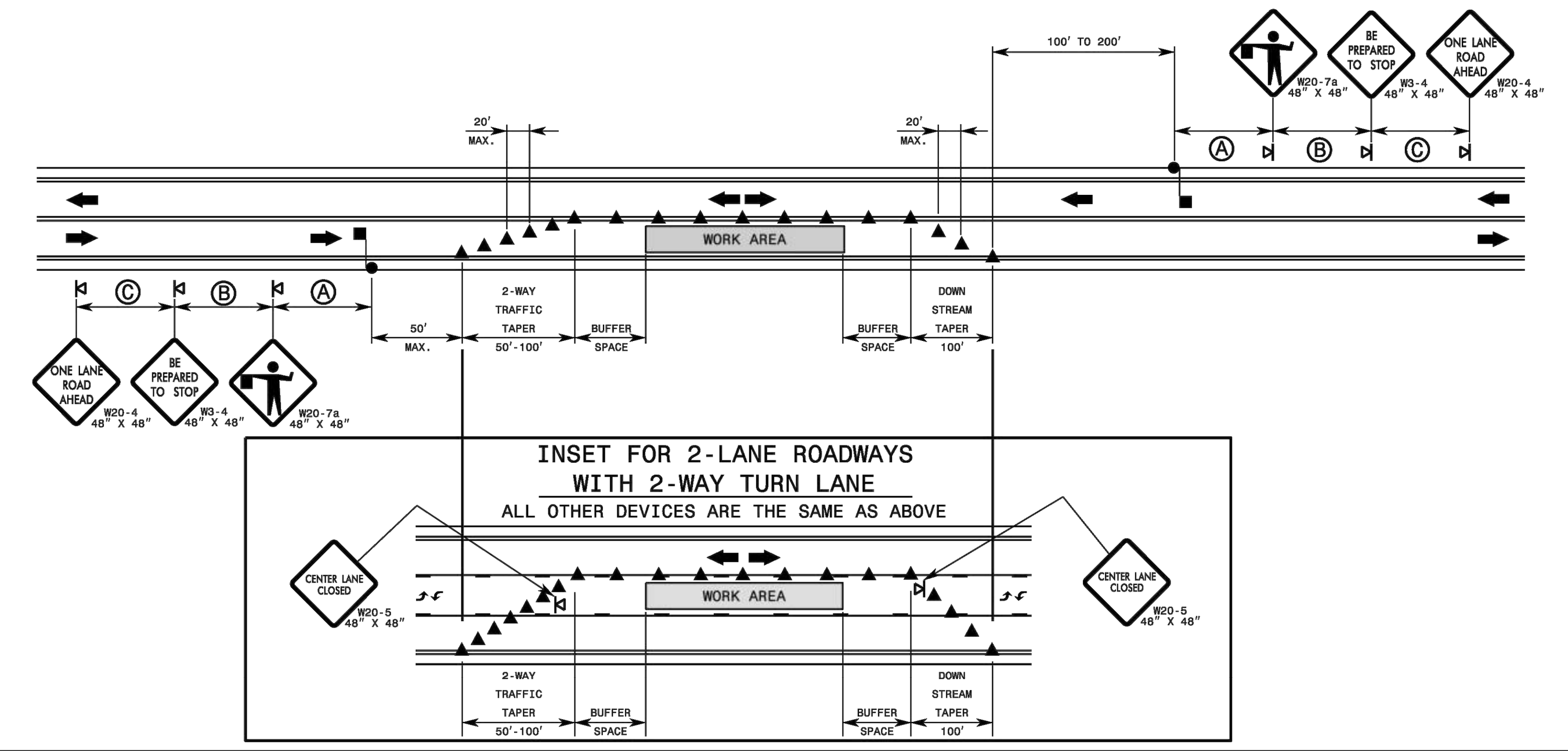
LEGEND
- ⊢ STATIONARY SIGN
- ← DIRECTION OF TRAFFIC FLOW

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

1-18

ROADWAY STANDARD DRAWING FOR **WORK ZONE ADVANCE WARNING SIGNS FOR TWO-WAY UNDIVIDED FACILITIES**

SHEET 3 OF 3 **1101.01**



GENERAL NOTES FOR FLAGGING OPERATIONS

1- REFER TO RSD. 1101.11, SHEETS 1 & 4, FOR "L" DISTANCE AND SIGN SPACING.

2- INSTALL LANE CLOSURES WITH THE TRAFFIC FLOW, BEGINNING WITH DEVICES ON THE UPSTREAM SIDE OF TRAFFIC.

3- REMOVE LANE CLOSURES AGAINST THE TRAFFIC FLOW, BEGINNING WITH DEVICES ON THE DOWNSTREAM SIDE OF TRAFFIC.

4- PLACE CONES THRU THE WORK AREA AT THE MAXIMUM SPACING EQUAL IN FEET TO 2 TIMES THE POSTED SPEED LIMIT.

5- EXTEND LANE CLOSURES AT THE BUFFER SPACE SUCH THAT STOPPING SIGHT DISTANCE IS PROVIDED TO THE FLAGGER (REFER TO RSD. 1101.11, SHEET 2).

6- DO NOT STOP TRAFFIC IN ANY ONE DIRECTION FOR MORE THAN 5 MINUTES AT A TIME.

7- DRUMS OR SKINNY DRUMS MAY BE USED IN LIEU OF CONES. REFER TO RSD. 1180.01 FOR SKINNY DRUM REQUIREMENTS.

8- USE FLAGGERS TO CONTROL TRAFFIC AT INTERSECTIONS AFFECTED BY THE LANE CLOSURE. SUPPLEMENT FLAGGERS LOCATED AT INTERSECTIONS WITH FLAGGER AHEAD SIGNS (W20-7a) PLACED APPROXIMATELY 250 FT. IN ADVANCE OF THE FLAGGER. FOR SIGNALIZED INTERSECTIONS PLACE SIGNALS IN THE FLASH MODE AND USE LAW ENFORCEMENT.

9- REFER TO THE CURRENT MUTCD FOR FLAGGER CONTROL, REQUIREMENTS, AND PROCEDURES.

10- DO NOT EXCEED A 1 MILE LANE CLOSURE LENGTH UNLESS OTHERWISE SHOWN IN THE TMP OR AS DIRECTED BY THE ENGINEER.

11- IF VEHICLE QUEUES WILL REACH WITHIN 15' OF EITHER SIDE OF ACTIVE RAILROAD TRACKS, PROVIDE A UNIFORMED LAW ENFORCEMENT OFFICER OR FLAGGER TO PREVENT VEHICLES FROM STOPPING WITHIN THE GRADE CROSSING. PROVIDE OFFICER OR FLAGGER EVEN IF AUTOMATIC WARNING MEASURES ALREADY EXIST.

GENERAL NOTES FOR PILOT CAR OPERATIONS

1- USE PILOT CARS WHEN DIRECTED BY THE ENGINEER.

2- IF ROADWAY WIDTH IS LESS THAN 22 FEET (EOP TO EOP), CONES MAY NOT BE REQUIRED ALONG WORK AREA, AND AT THE DISCRETION OF THE ENGINEER, CONES MAY BE OMITTED ALONG THE WORK AREA IF USING A PILOT CAR.

3- CONES ARE ALWAYS REQUIRED IN THE UPSTREAM AND DOWNSTREAM TAPERS.

4- MOUNT SIGN G20-4 "PILOT CAR FOLLOW ME" AT A CONSPICUOUS POSITION ON THE REAR OF THE PILOT VEHICLE.

5- DO NOT INSTALL MORE THAN ONE (1) MILE OF LANE CLOSURE, MEASURED FROM THE BEGINNING OF THE MERGE TAPER TO THE END OF THE LANE CLOSURE.

6- ADVISE RESIDENTS AND BUSINESSES WITHIN THE LANE CLOSURE LIMITS ABOUT METHODS OF SAFE EGRESS AND INGRESS FROM DRIVEWAYS DURING FLAGGING AND PILOT CAR OPERATIONS.

LEGEND
- FLAGGER
- ▲ CONE
- PORTABLE SIGN
- ← DIRECTION OF TRAFFIC FLOW

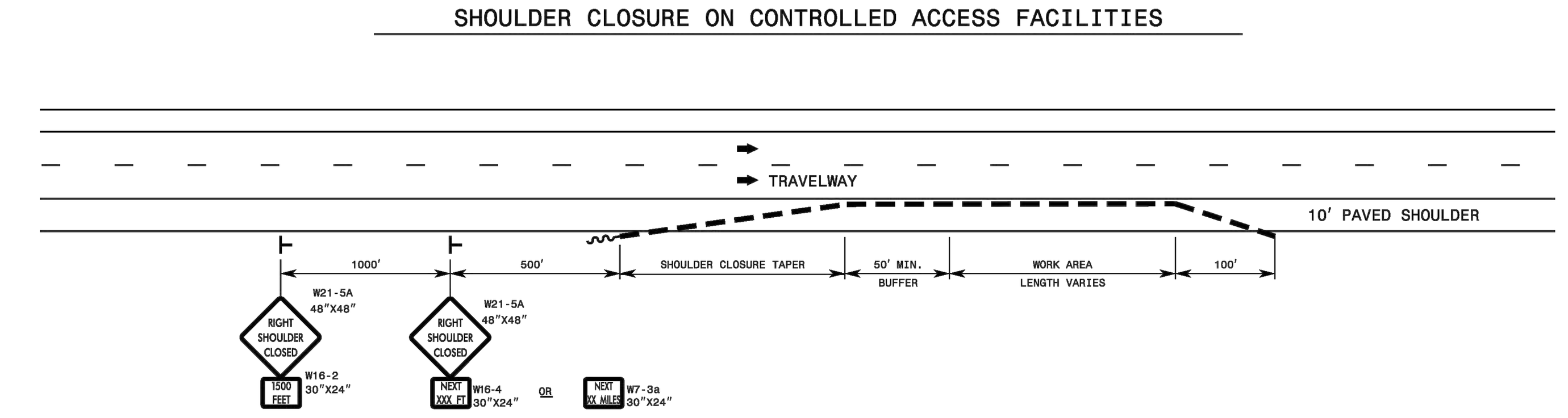
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-18

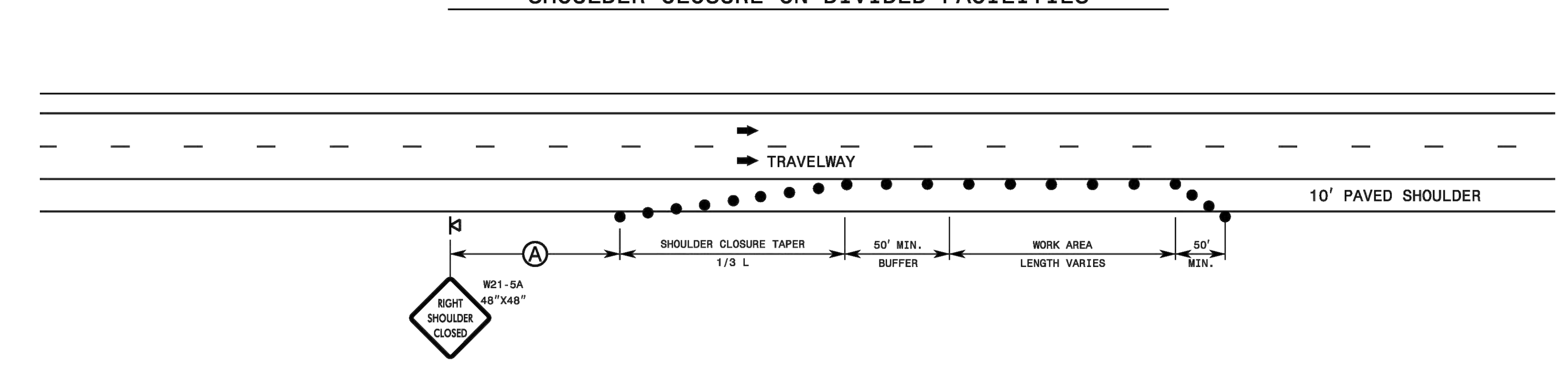
ROADWAY STANDARD DRAWING FOR **TEMPORARY LANE CLOSURES** 2-LANE, 2-WAY ROADWAY-1 LANE CLOSED

SHEET 1 OF 14 **1101.02**

SHOULDER CLOSURE ON CONTROLLED ACCESS FACILITIES



SHOULDER CLOSURE ON DIVIDED FACILITIES



GENERAL NOTES

1- PLACE SHOULDER CLOSURE SIGNS ON THE SAME SIDE AS THE SHOULDER THAT IS CLOSED.

2- PLACE DRUMS IN THE SHOULDER TAPER AT THE MAXIMUM SPACING EQUAL IN FEET TO THE POSTED SPEED LIMIT. THE MAXIMUM SPACING OF DRUMS ALONG THE WORK AREA IS EQUAL IN FEET TO 2 TIMES THE POSTED SPEED LIMIT.

3- USE STATIONARY SIGNS FOR OPERATIONS IN EFFECT LONGER THAN 3 DAYS.

4- REFER TO RSD. 1101.11, SHEETS 1, 3 & 4, FOR "L" DISTANCE, BARRIER FLARE RATES, AND SIGN SPACING.

LEGEND
- ● DRUM
- ⊢ STATIONARY SIGN
- PORTABLE SIGN
- PORTABLE CONCRETE BARRIER
- → DIRECTION OF TRAFFIC FLOW
- TEMPORARY CRASH CUSHION

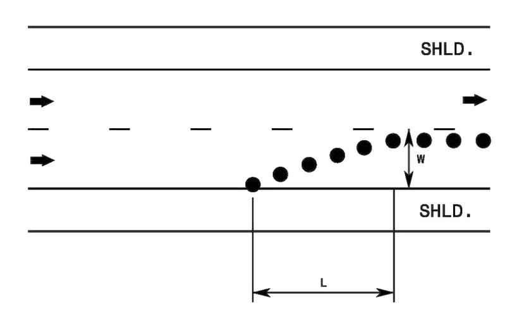
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-18

ROADWAY STANDARD DRAWING FOR **TEMPORARY SHOULDER CLOSURES**

SHEET 1 OF 1 **1101.04**

EXAMPLE OF "L" & "W" DESIGNATIONS



QUICK REFERENCE - "L" DISTANCE TABLE												
MINIMUM LONGITUDINAL DISTANCE "L" (FEET) (ROUNDED VALUES)												
POSTED SPEED "S" (MPH)	LATERAL WIDTH "W" (FEET)											
	1	2	3	4	5	6	7	8	9	10	11	12
20	10	15	20	30	35	40	50	55	60	70	75	80
25	15	25	35	45	55	65	75	85	95	105	115	125
30	15	30	45	60	75	90	105	120	135	150	165	180
35	25	45	65	85	105	125	145	165	185	205	225	245
40	30	55	80	110	135	160	190	215	240	270	295	320
45	45	90	135	180	225	270	315	360	405	450	495	540
50	50	100	150	200	250	300	350	400	450	500	550	600
55	55	110	165	220	275	330	385	440	495	550	605	660
60	60	120	180	240	300	360	420	480	540	600	660	720
65	65	130	195	260	325	390	455	520	585	650	715	780
70	70	140	210	280	350	420	490	560	630	700	770	840

TAPER LENGTH CRITERIA FOR CHANNELIZING DEVICES IN WORK ZONES

TYPES OF TAPERS — TAPER LENGTH

UPSTREAM TAPER
- MERGING TAPER.......................L MINIMUM
- SHIFTING TAPER.......................½ L MINIMUM
- SHOULDER TAPER.......................⅓ L MINIMUM
- TWO-WAY TRAFFIC TAPER.......................50 - 100 FEET MAXIMUM

DOWNSTREAM TAPER.......................100 FEET MAXIMUM

DO NOT INTRODUCE A MERGING OR SHIFTING TAPER WITHIN A CURVE OF THE ROADWAY

GENERAL NOTES

1- TABLE FOR "L" DISTANCE IS BASED ON CHANNELIZATION TAPER FORMULA FROM THE MUTCD. WHERE:

SPEED LIMIT	FORMULA
40 MPH OR LESS	$L_{MIN} = \frac{W \times S^2}{60}$
45 MPH OR GREATER	$L_{MIN} = W \times S$

L = MINIMUM TAPER LENGTH IN FEET (LONGITUDINAL DISTANCE)
W = WIDTH OF OFFSET IN FEET (LATERAL DISTANCE)
S = POSTED SPEED LIMIT, OR OFF-PEAK 85 PERCENTILE SPEED IN MPH PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED IN MPH

2- "L" DISTANCE IS FOR APPLICATION WITH CHANNELIZING DEVICE AND PAVEMENT MARKING TAPERS AND TRANSITIONS. CHANNELIZING DEVICES INCLUDE DRUMS, CONES, TUBULAR MARKERS, BARRICADES, RAISED ASPHALT ISLANDS, AND VERTICAL PANELS.

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

1-18

ROADWAY STANDARD DRAWING FOR **TRAFFIC CONTROL DESIGN TABLES** "L" DISTANCE AND CHANNELIZING DEVICE TAPER CRITERIA

SHEET 1 OF 4 **1101.11**

DESIGN SPEED (MPH)	MINIMUM SIGHT DISTANCE		MINIMUM LONGITUDINAL BUFFER SPACE (FEET)
	STOPPING SIGHT DISTANCE (FEET)	PASSING SIGHT DISTANCE (FEET)	
30	200	1090	85
35	250	1280	120
40	305	1470	155
45	360	1625	195
50	425	1835	240
55	495	1985	290
60	570	2135	345
65	645	2285	405
70	730	2480	470
75	820	2580	540
80	910	2680	615

GENERAL NOTES

1- TABLES ARE BASED ON THE AASHTO GREEN BOOK "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS" AND THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES". MINIMUM SIGHT DISTANCE VALUES ARE FOR PASSENGER CAR VEHICLES ON WET AND LEVEL ROADWAYS. CONSULT THE AASHTO GREEN BOOK TO MAKE FINAL DETERMINATION OF STOPPING SIGHT DISTANCE REQUIREMENTS.

2- BUFFER SPACE TABLE IS BASED ON THE BRAKING DISTANCE PORTION OF STOPPING SIGHT DISTANCE FOR WET AND LEVEL PAVEMENTS.

3- USE OF STOPPING SIGHT DISTANCE IN TRAFFIC CONTROL PLAN APPLICATIONS INCLUDES PROVIDING SIGHT DISTANCE FOR TRAFFIC APPROACHING A LANE CLOSURE. PROVIDE 2-LANE, 2-WAY ROADWAYS STOPPING SIGHT DISTANCE TO THE FLAGGER. FOR LANE CLOSURES ON MULTILANE ROADWAYS PROVIDE STOPPING SIGHT DISTANCE TO THE BEGINNING OF THE LANE CLOSURE MERGE TAPER, OR FLASHING ARROW BOARD. EXTEND LANE CLOSURES AT THE BUFFER SPACE SUCH THAT STOPPING SIGHT DISTANCE IS PROVIDED.

4- USE OF MINIMUM PASSING SIGHT DISTANCE TABLE IN TRAFFIC CONTROL PLAN APPLICATIONS INCLUDES PROVIDING SIGHT DISTANCE REQUIREMENTS FOR PLACEMENT OF PAVEMENT MARKING PASSING/NO-PASSING ZONES FOR 2-LANE, 2-WAY ROADWAYS.

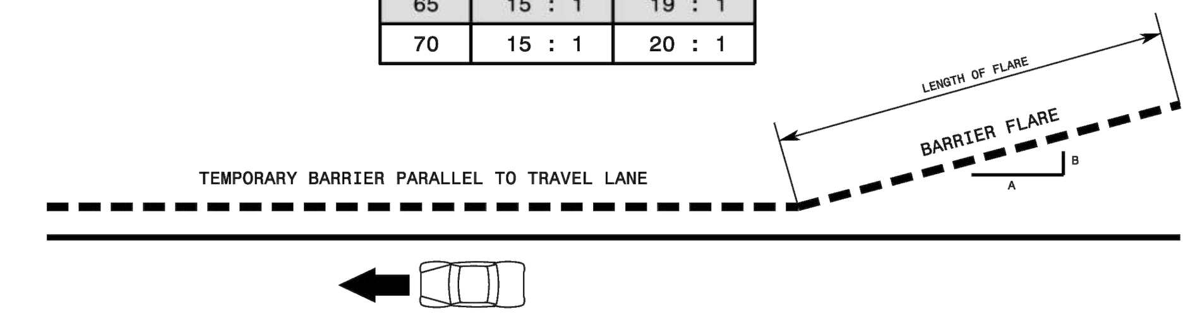
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-18

ROADWAY STANDARD DRAWING FOR **TRAFFIC CONTROL DESIGN TABLES** BUFFER SPACE & SIGHT DISTANCE

SHEET 2 OF 4 **1101.11**

TEMPORARY BARRIER FLARE RATES		
POSTED SPEED LIMIT (MPH)	UNANCHORED (A:B)	ANCHORED (A:B)
≤ 30	7 : 1	8 : 1
35	8 : 1	9 : 1
40	8 : 1	10 : 1
45	10 : 1	12 : 1
50	11 : 1	14 : 1
55	12 : 1	16 : 1
60	14 : 1	18 : 1
65	15 : 1	19 : 1
70	15 : 1	20 : 1



GENERAL NOTES

1- REFER TO THE 2011 ROADSIDE DESIGN GUIDE OR THE LATEST EDITION.

2- A BARRIER IS CONSIDERED FLARED WHEN IT IS NOT PARALLEL TO THE EDGE OF THE TRAVELWAY.

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

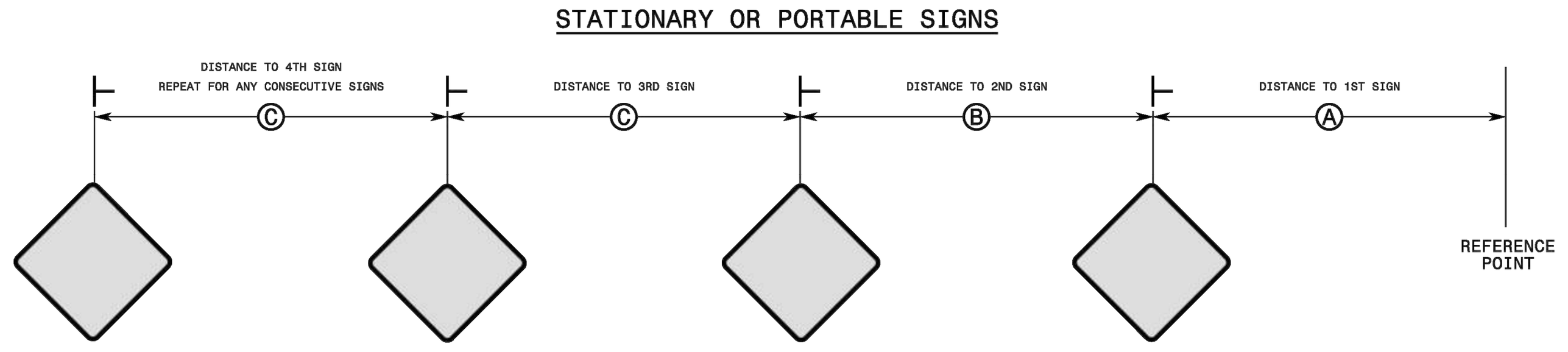
1-18

ROADWAY STANDARD DRAWING FOR **TRAFFIC CONTROL DESIGN TABLES** TEMPORARY BARRIER FLARE RATES

SHEET 3 OF 4 **1101.11**

ADVANCE WARNING SIGN SPACING CHART			
POSTED SPEED LIMIT (MPH)	RECOMMENDED DISTANCE BETWEEN SIGNS (FEET)±		
	Ⓐ	Ⓑ	Ⓒ
≤ 35	200	200	200
40-50	350	350	350
55	500	500	500
CONTROLLED ACCESS ROADS (≥ 55)	1000	1500	2700

STATIONARY OR PORTABLE SIGNS



GENERAL NOTES

1- REFER TO 2009 MUTCD OR THE LATEST EDITION.

2- USE THIS STANDARD DRAWING IN CONJUNCTION WITH OTHER TRAFFIC CONTROL ROADWAY STANDARD DRAWINGS WHERE SIGN SPACING DISTANCES A, B, C, ARE SPECIFIED.

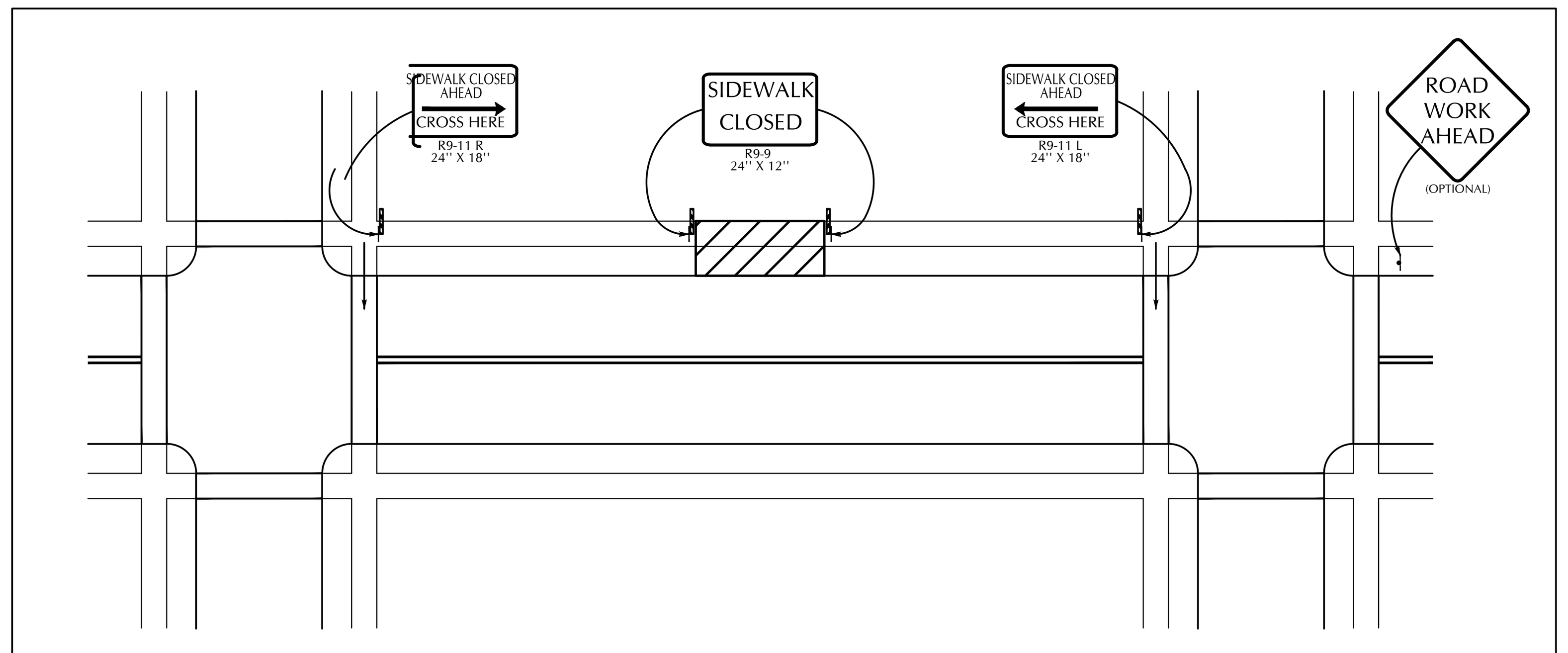
3- APPLY THE ADVANCE WARNING SIGN SPACING CHART WHERE A SERIES OF 2 OR MORE SIGNS ARE USED. ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE. FIELD ADJUST AS VARIOUS CONDITIONS OCCUR, SUCH AS LIMITED SIGHT DISTANCE, OBSTRUCTION INTERFERENCE, ETC.

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

1-18

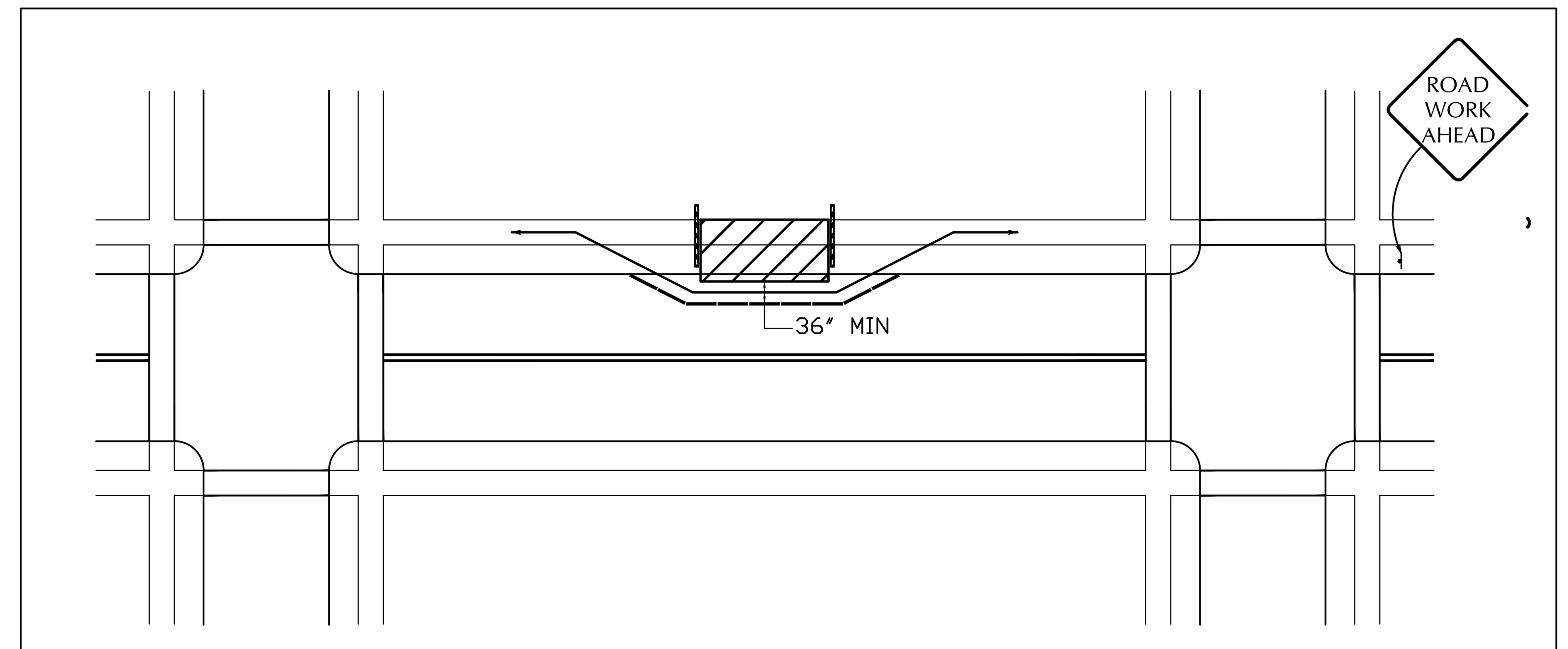
ROADWAY STANDARD DRAWING FOR **TRAFFIC CONTROL DESIGN TABLES** SPACING OF TEMPORARY SIGNS IN SERIES

SHEET 4 OF 4 **1101.11**



NOTE:
1. USE APPROPRIATE TRAFFIC CONTROL MEASURES AS NECESSARY.

PEDESTRIAN DETOUR



NOTE:
1. USE APPROPRIATE TRAFFIC CONTROL MEASURES AS NECESSARY.
2. DIVERSION TO MEET ADA REQUIREMENTS.

PEDESTRIAN DIVERSION

WithersRavenel
137 S Wilmington Street | Suite 200 | Raleigh, NC 27601
License #: F-1479 | t: 919.469.3340 | www.withersravenel.com
our people • your success

THE TOWN OF NAGS HEAD 1961
Post Office Box 99
Nags Head, NC 27959

CONSTRUCTION DRAWINGS
SOUTH OREGON INLET ROAD
STORMWATER INFRASTRUCTURE IMPROVEMENTS
AREA 13
Town Of Nags Head | Dare County | North Carolina

NORTH CAROLINA PROFESSIONAL SEAL 047183 ENGINEER DARWICHE EL SABEH 3/5/2025

INITIAL PLAN DATE: 02/29/2024
REVISIONS:
01/22/2025

WR JOB NUMBER 03210159.03
DRN: BGB DGN: BGB CKD: DNS/APH

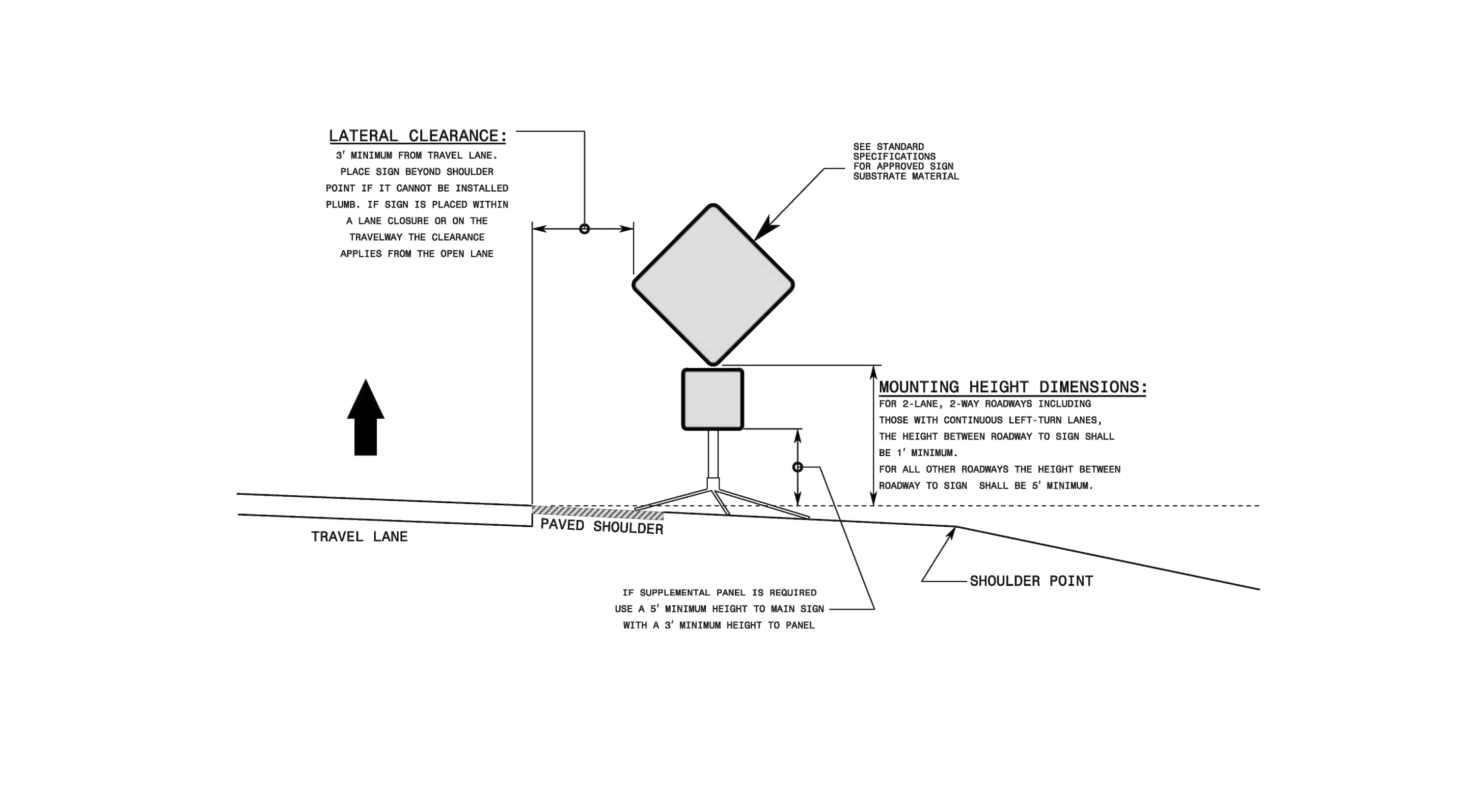
TRAFFIC CONTROL DETAILS (1 OF 2)

4.02

FINAL DRAWING
FOR REVIEW PURPOSES ONLY
NOT RELEASED FOR CONSTRUCTION

ROADWAY STANDARD DRAWING FOR PORTABLE WORK ZONE SIGNS — MOUNTING HEIGHT & LATERAL CLEARANCE

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C. 1-18



GENERAL NOTES

1- DIMENSIONS SHOWN ARE MINIMUM VALUES. MOUNT SIGNS SO THEY WILL BE CLEARLY VISIBLE TO APPROACHING TRAFFIC EVEN WHEN SIGNS ARE MOUNTED BEHIND TRAFFIC CONTROL DEVICES SUCH AS DRUMS, BARRIER, OR OTHER OBJECTS.

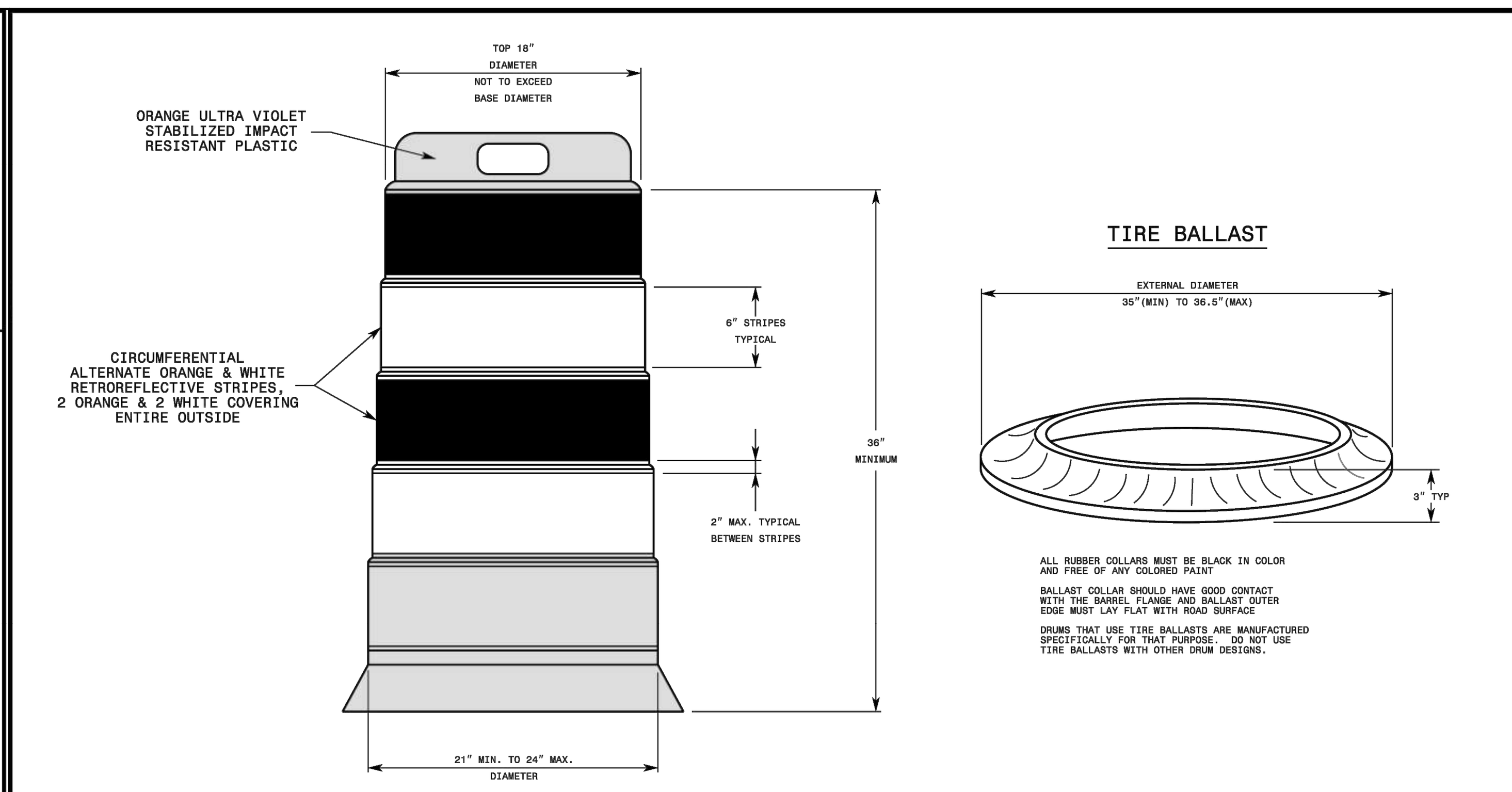
2- ALL PORTABLE SIGNS AND STANDS MUST MEET OR EXCEED THE REQUIREMENTS OF NCHRP 350 FOR CATEGORY II DEVICES. USE PORTABLE WORK ZONE SIGNS AND STANDS SPECIFICALLY DESIGNED FOR ONE ANOTHER.

3- ALL PORTABLE WORK ZONE SIGNS AND STANDS MUST BE LISTED ON THE DEPARTMENT'S APPROVED PRODUCTS LIST.

SHEET 1 OF 1 **1110.02**

ROADWAY STANDARD DRAWING FOR DRUMS

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C. 1-18



GENERAL NOTES

1- BALLASTING SHALL BE ACHIEVED BY THE SAND BAG, TIRE-SIDEWALL, OR PREFORMED WEIGHTED BASE METHODS. USE THE TIRE BALLAST AS SPECIFIED BY THE MANUFACTURER. DO NOT PLACE BALLAST ON TOP OF THE DRUM.

2- IF NECESSARY PLACE THE NAME OF THE AGENCY, CONTRACTOR, OR SUPPLIER ON NON-RETROREFLECTIVE DRUM SURFACES. SHOW THE LETTERS AND NUMBERS USING A NON-RETROREFLECTIVE COLOR AND NOT OVER 2" IN HEIGHT.

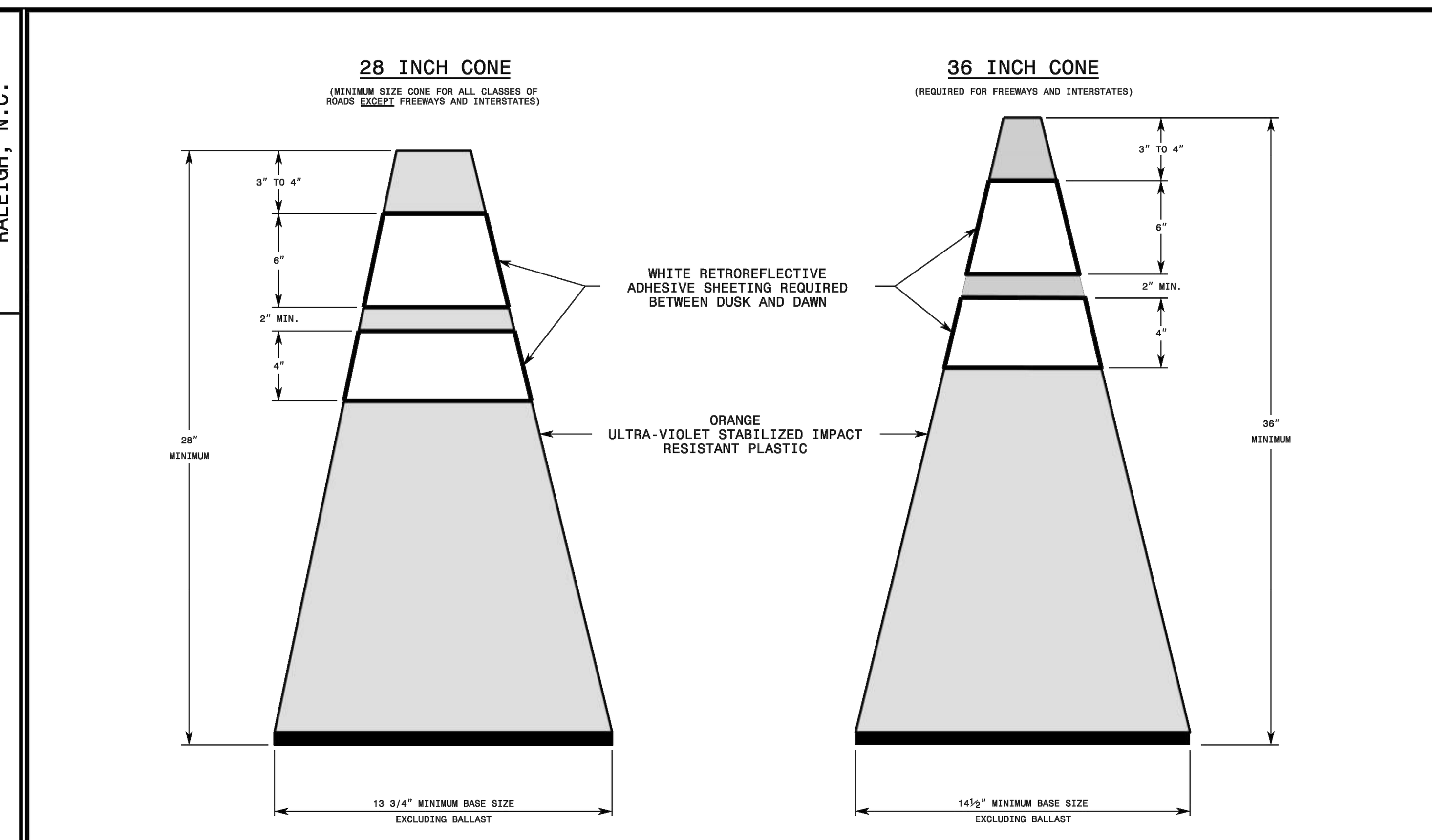
3- ALL DRUMS MUST BE LISTED ON THE DEPARTMENT'S APPROVED PRODUCT LIST.

4- REFER TO THE STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES FOR ADDITIONAL INFORMATION.

SHEET 1 OF 1 **1130.01**

ROADWAY STANDARD DRAWING FOR CONES

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C. 1-18



GENERAL NOTES

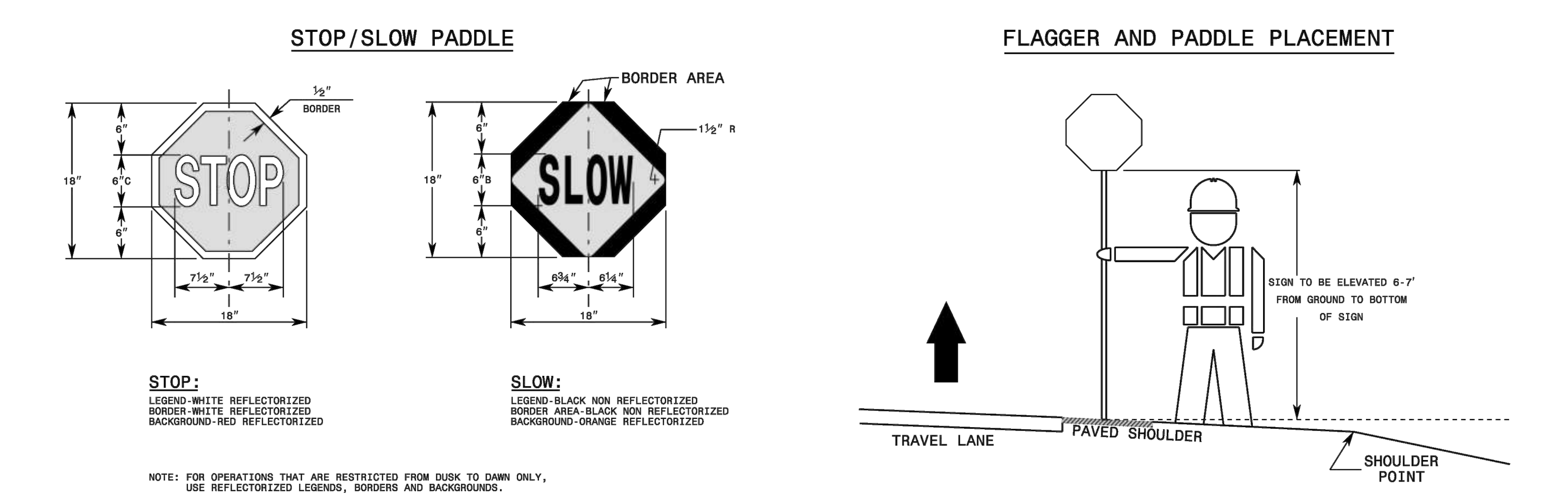
1- ACHIEVE BALLASTING BY USING SPECIAL WEIGHTED BASES SUCH AS SAND BAG RINGS, DOUBLING CONES, OR BASES THAT CAN BE FILLED WITH BALLAST. SEVENTY PERCENT OF THE WEIGHT OF THE CONE MUST BE IN THE BASE. USE BALLAST'S THAT DO NOT PRESENT A HAZARD WHEN STRUCK.

2- ALL CONES MUST BE LISTED ON THE DEPARTMENT'S APPROVED PRODUCTS LIST.

SHEET 1 OF 1 **1135.01**

ROADWAY STANDARD DRAWING FOR FLAGGERS

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C. 1-18



GENERAL NOTES

1- USE HAND SIGNALING DEVICES SUCH AS STOP-SLOW PADDLES, FLASHLIGHTS TO CONTROL TRAFFIC. USE STOP-SLOW PADDLES AS THE PRIMARY DEVICE.

2- FABRICATE STOP-SLOW PADDLES FROM SHEET METAL OR OTHER LIGHT SEMI RIGID MATERIAL. PROVIDE A RIGID HANDLE OF SUFFICIENT LENGTH SO THE PADDLE IS HELD AT 6-7' ABOVE GROUND LEVEL.

3- PROVIDE STOPPING SIGHT DISTANCE TO EACH FLAGGER STATION. REFER TO RSD. 1101.11, SHEET 2.

4- ILLUMINATE FLAGGER STATIONS DURING NIGHT OPERATIONS.

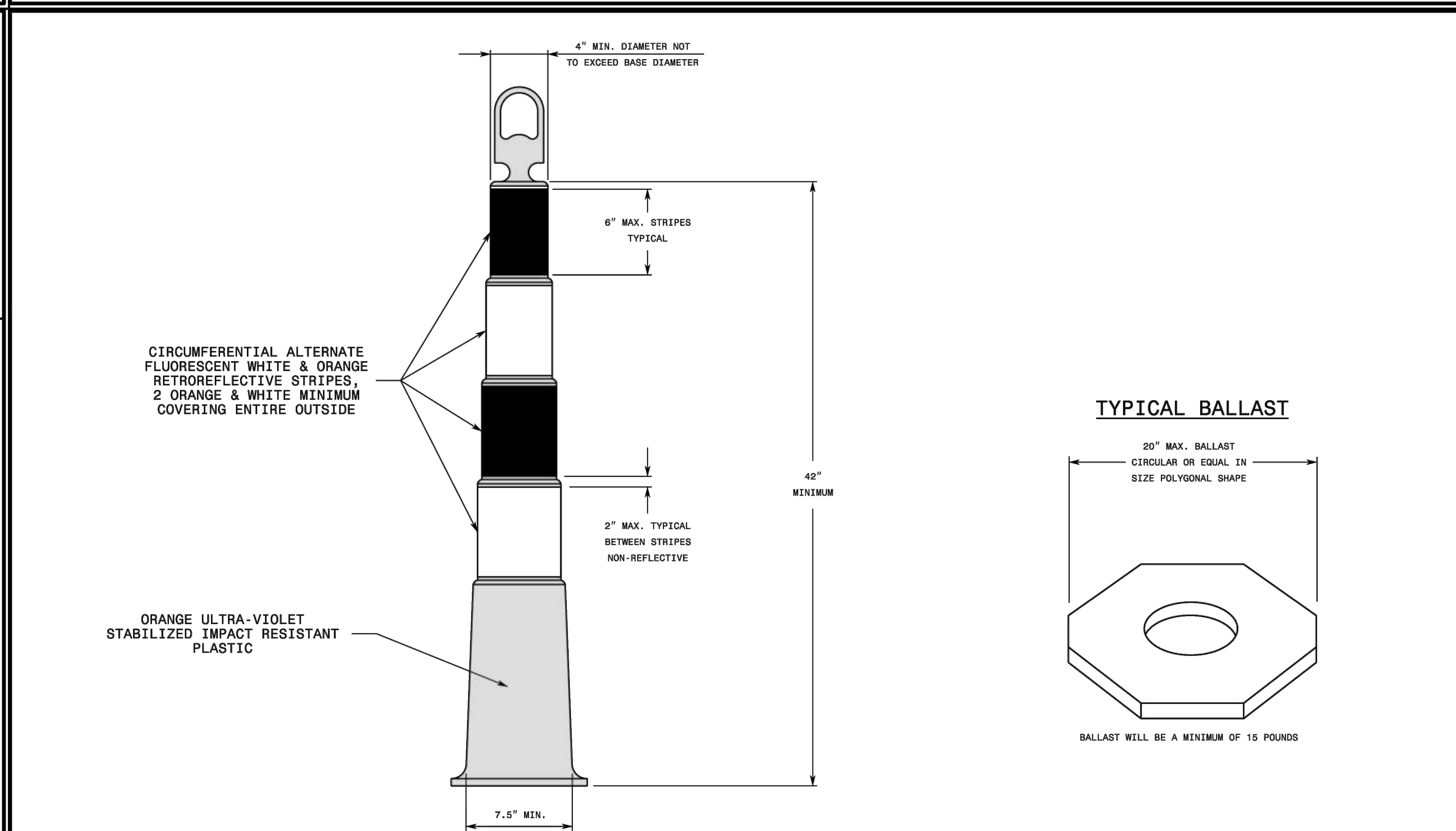
5- FOLLOW FLAGGER QUALIFICATIONS AND METHODS OF HAND-SIGNALING PROCEDURES IN ACCORDANCE WITH PART VI OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

6- ALL FLAGGERS MUST BE CERTIFIED BY AN NCDOT APPROVED TRAINING RESOURCE.

SHEET 1 OF 1 **1150.01**

ROADWAY STANDARD DRAWING FOR SKINNY DRUMS

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C. 1-18



GENERAL NOTES

1- USE BALLAST AS SPECIFIED BY THE MANUFACTURER. DO NOT PLACE BALLAST ON TOP OF THE DRUM.

2- IF NECESSARY, PLACE THE NAME OF THE AGENCY, CONTRACTOR, OR SUPPLIER ON NON-RETROREFLECTIVE SURFACES. SHOW THE LETTERS AND NUMBERS USING A NON-RETROREFLECTIVE COLOR AND NOT OVER 2" IN HEIGHT.

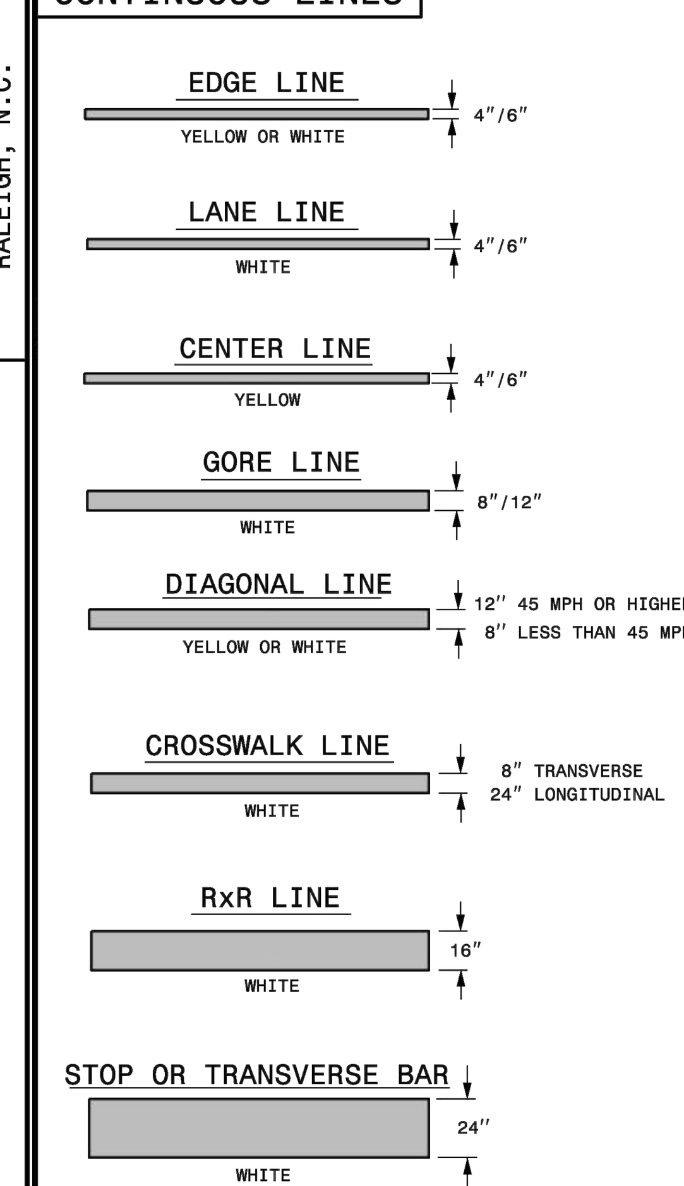
4- REFER TO STANDARD SPECIFICATIONS FOR ROADS AND INSTRUCTIONS FOR ADDITIONAL REQUIREMENTS.

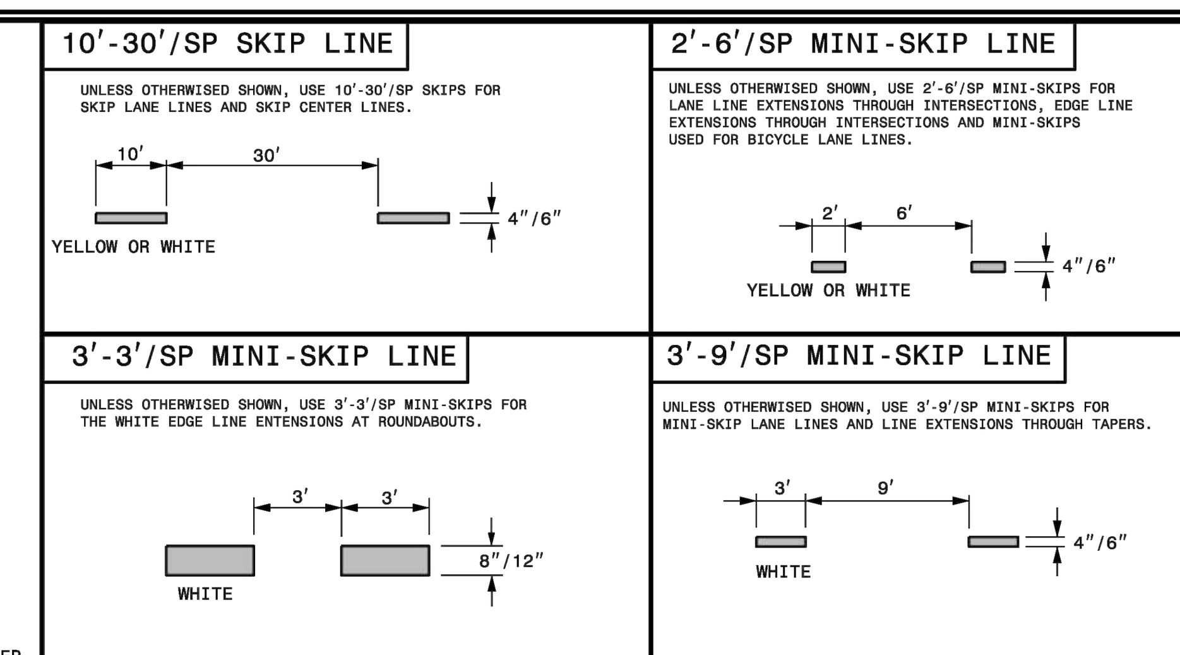
5- ALL SKINNY DRUMS MUST BE LISTED ON THE DEPARTMENT'S APPROVED PRODUCTS LIST.

SHEET 1 OF 1 **1180.01**

ROADWAY STANDARD DRAWING FOR PAVEMENT MARKINGS — LINE TYPES AND OFFSETS

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C. 1-18





GENERAL NOTES:

1- USE 6" LANE, EDGE, AND CENTER LINES ON ALL FULL CONTROL OF ACCESS FACILITIES AND OTHER ROUTES AS DIRECTED BY THE ENGINEER.

2- LANE LINES INDICATED AS "WIDE" ON THE ROADWAY STANDARD DRAWINGS SHALL BE AT LEAST TWICE THE WIDTH OF THE NORMAL LINE.

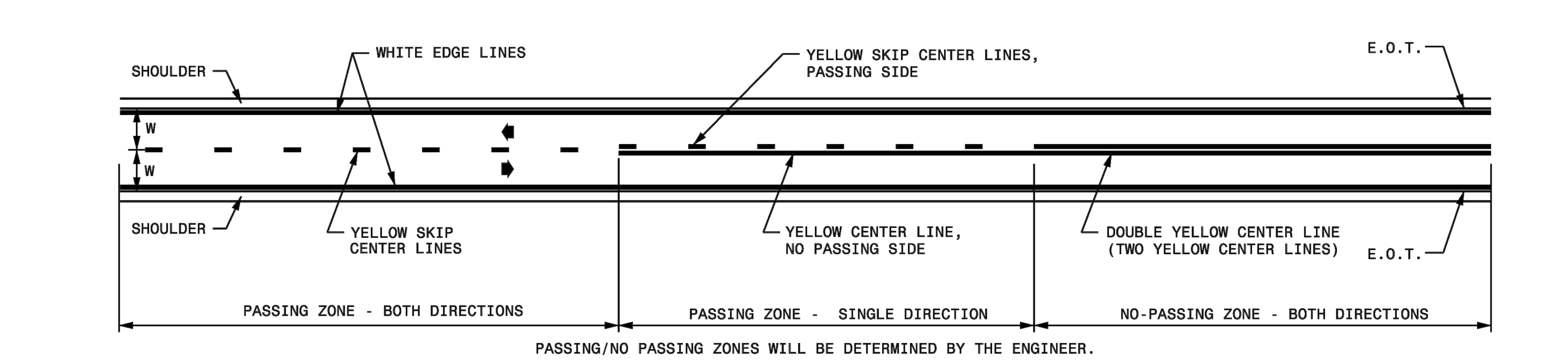
3- GORE LINES SHALL BE TWICE THE WIDTH OF THE NORMAL LINE.

SHEET 1 OF 2 **1205.01**

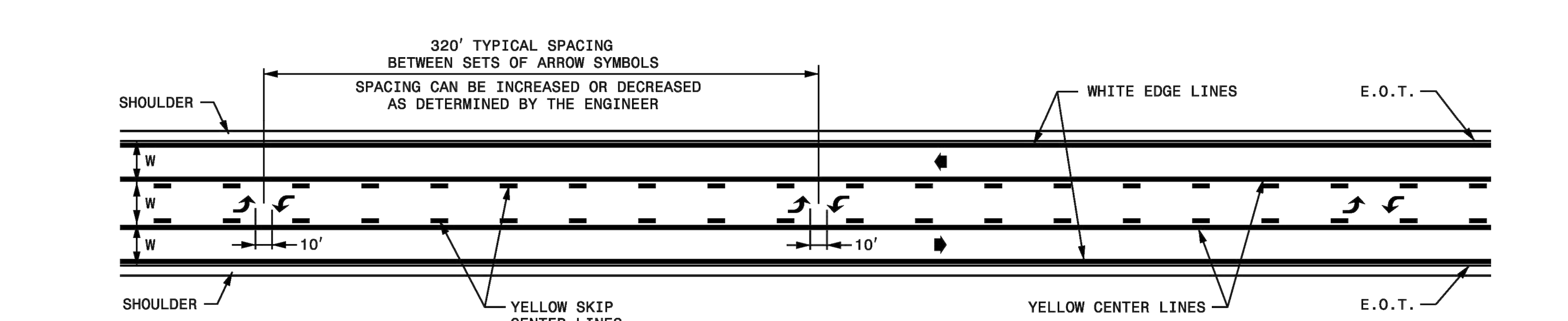
ROADWAY STANDARD DRAWING FOR PAVEMENT MARKINGS — TWO-LANE AND MULTI-LANE ROADWAYS

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C. 1-18

TWO-LANE, TWO-WAY ROADWAY



TWO-LANE, TWO-WAY ROADWAY WITH TWO-WAY LEFT TURN LANE



GENERAL NOTES:

1- EDGE LINES ARE NOT REQUIRED ALONG CURB AND GUTTER LOCATIONS.

2- CONTINUE EDGE LINES THROUGH MINOR DRIVEWAYS. DO NOT CONTINUE EDGE LINES AT INTERSECTIONS AND MAJOR DRIVEWAYS, SEE ROADWAY STANDARD DRAWING 1205.05 FOR ADDITIONAL GUIDANCE.

3- REFER TO ROADWAY STANDARD DRAWINGS 1205.01 AND 1205.08 FOR ADDITIONAL PAVEMENT MARKING GUIDANCE.

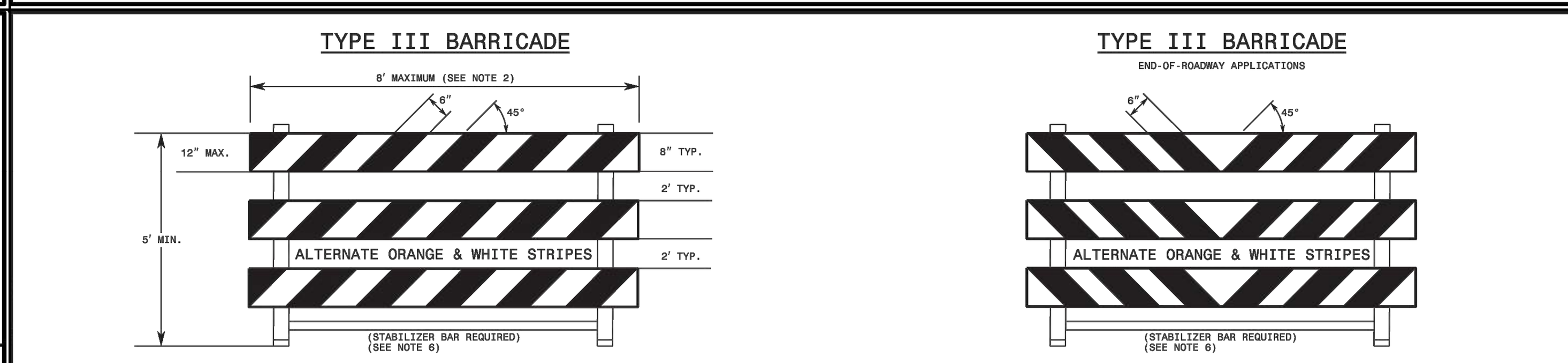
LEGEND

W = WIDTH OF TRAVEL LANE
E.O.T.= EDGE OF TRAVEL
DIRECTION OF TRAFFIC FLOW
PAVEMENT MARKING SYMBOLS

SHEET 1 OF 2 **1205.02**

ROADWAY STANDARD DRAWING FOR BARRICADES — TYPE-III

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C. 1-18



GENERAL NOTES

1- HORIZONTAL RAILS FOR MAY BE CONSTRUCTED OF APPROVED COMPOSITE, HOLLOW/CORRUGATED EXTRUDED RIGID POLYOLEFIN, HIGH DENSITY POLYETHYLENE, OR OTHER NCDOT APPROVED MATERIAL.

2- BARRICADE SHALL BE LIMITED TO A MAXIMUM LENGTH OF 8 FT UNLESS NCHRP 350 CRASH TESTED FOR CATEGORY II DEVICES AND NCDOT APPROVED.

3- ONLY NCDOT APPROVED COMPOSITE AND ROLL-UP SIGNS MAY BE MOUNTED ON THE BARRICADE RAILS. MOUNT SIGNS TO BARRICADE RAILS TO ENSURE SIGN WILL NOT BECOME DETACHED UNDER NORMAL WIND AND TRAFFIC CONDITIONS.

4- SIGNS SHALL BE MOUNTED A MINIMUM OF 1 FOOT FROM THE GROUND TO THE BOTTOM OF THE SIGN UNLESS SIGNS R11-3 OR R11-4 ARE REQUIRED BY THE PLANS OR DIRECTED BY THE ENGINEER.

5- BARRICADE MUST BE NCHRP 350 FOR CATEGORY II DEVICES AND NCDOT APPROVED WITH STABILIZER BAR OR ADEQUATE LATERAL BRACING.

6- ASSEMBLY OF THE GENERIC BARRICADES MUST BE SELF CERTIFIED BY THE ASSEMBLER.

7- BARRICADES USED TO CLOSE A ROADWAY SHALL EXTEND ACROSS THE ENTIRE ROADWAY. WHERE LOCAL TRAFFIC MUST BE MAINTAINED, THEY MAY BE PLACED IN A STAGGERED PATTERN.

8- STRIPES ON WORK ZONE BARRICADE RAILS SHALL BE ALTERNATE ORANGE AND WHITE RETROREFLECTIVE STRIPES, SLOPED DOWNWARD TOWARDS THE SIDE WHICH TRAFFIC IS TO PASS OR TURN IN DETOURING. WHERE NO TURNS ARE INTENDED, THE STRIPES SHOULD SLOPE DOWNWARD TOWARD THE CENTER OF THE BARRICADE OR BARRICADES.

9- USE RED AND WHITE STRIPES FOR PERMANENT BARRICADES.

10- ALL BARRICADES MUST BE LISTED ON THE DEPARTMENT'S APPROVED PRODUCTS LIST.

11- PLACE MANUFACTURER'S NAME AND FEDERAL HIGHWAY ADMINISTRATION'S NCHRP 350 APPROVAL LETTER NUMBER ON BARRICADE FRAME.

12- PLACE SANDBAGS OR OTHER APPROVED BALLASTING METHODS ON THE FEET OF THE FRAME. DO NOT PLACE SANDBAGS ON TOP OF A STRIPED RAIL OR STABILIZER BAR. DO NOT BALLAST BARRICADES BY HEAVY OBJECTS SUCH AS ROCKS, CHUNKS OF CONCRETE OR OTHER ITEMS THAT WOULD CAUSE DAMAGE IF THE BARRICADE IS STRUCK BY A VEHICLE.

SHEET 1 OF 1 **1145.01**

FINAL DRAWING
FOR REVIEW PURPOSES ONLY
NOT RELEASED FOR CONSTRUCTION

WithersRavenel
137 S Wilmington Street | Suite 200 | Raleigh, NC 27601
License #: F-1479 | t: 919.469.3340 | www.withersravenel.com
our people • your success

THE TOWN OF NAGS HEAD 1961
Post Office Box 99
Nags Head, NC 27959

CONSTRUCTION DRAWINGS
SOUTH OREGON INLET ROAD
STORMWATER INFRASTRUCTURE IMPROVEMENTS
AREA 13
Town Of Nags Head | Dare County | North Carolina

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 047183 DARWICHE EL SABEH
3/5/2025

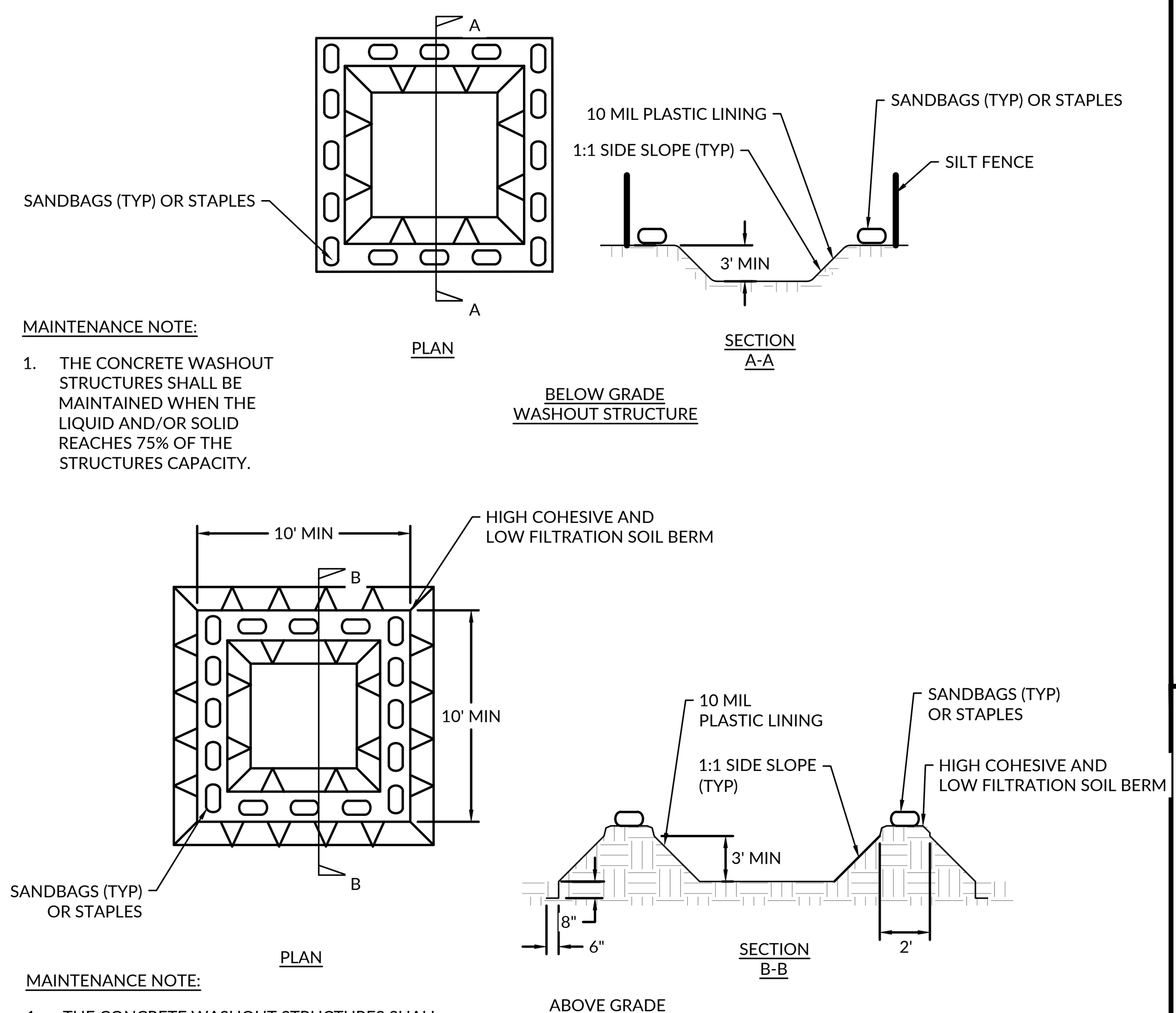
INITIAL PLAN DATE: 02/29/2024
REVISIONS:
01/22/2025

WR JOB NUMBER 03210159.03
DRN: BGB DGN: BGB CKD: DNS/APH

TRAFFIC CONTROL DETAILS (2 OF 2)

4.03

EST. 1983



MAINTENANCE NOTE:

1. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY.

MAINTENANCE NOTE:

1. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.

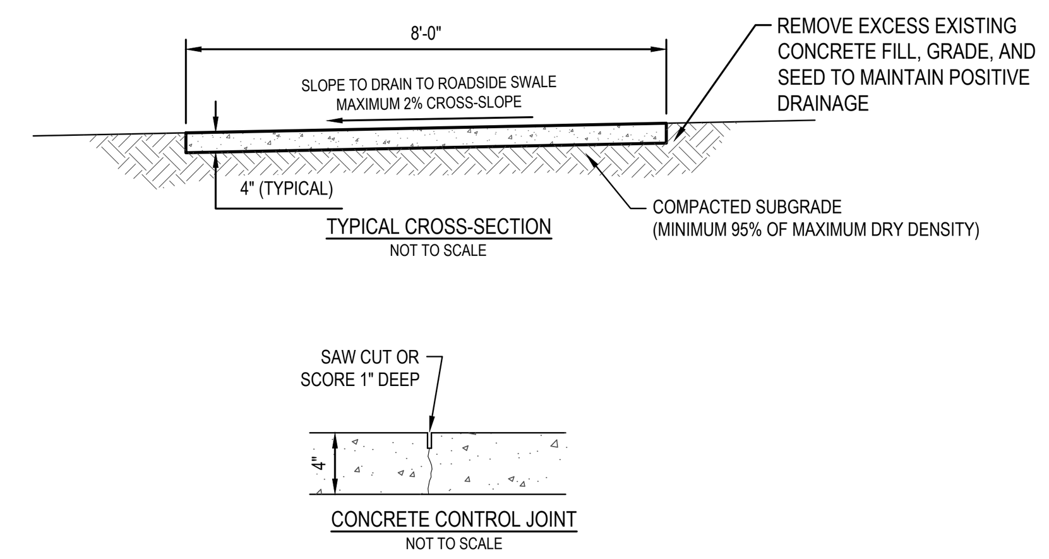
NOTES:

1. ACTUAL LOCATION DETERMINED IN FIELD
2. CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

CONCRETE WASHOUT — CLEARLY MARKED SIGNAGE NOTING DEVICE (18"X24" MIN)

ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER — EROSION CONTROL

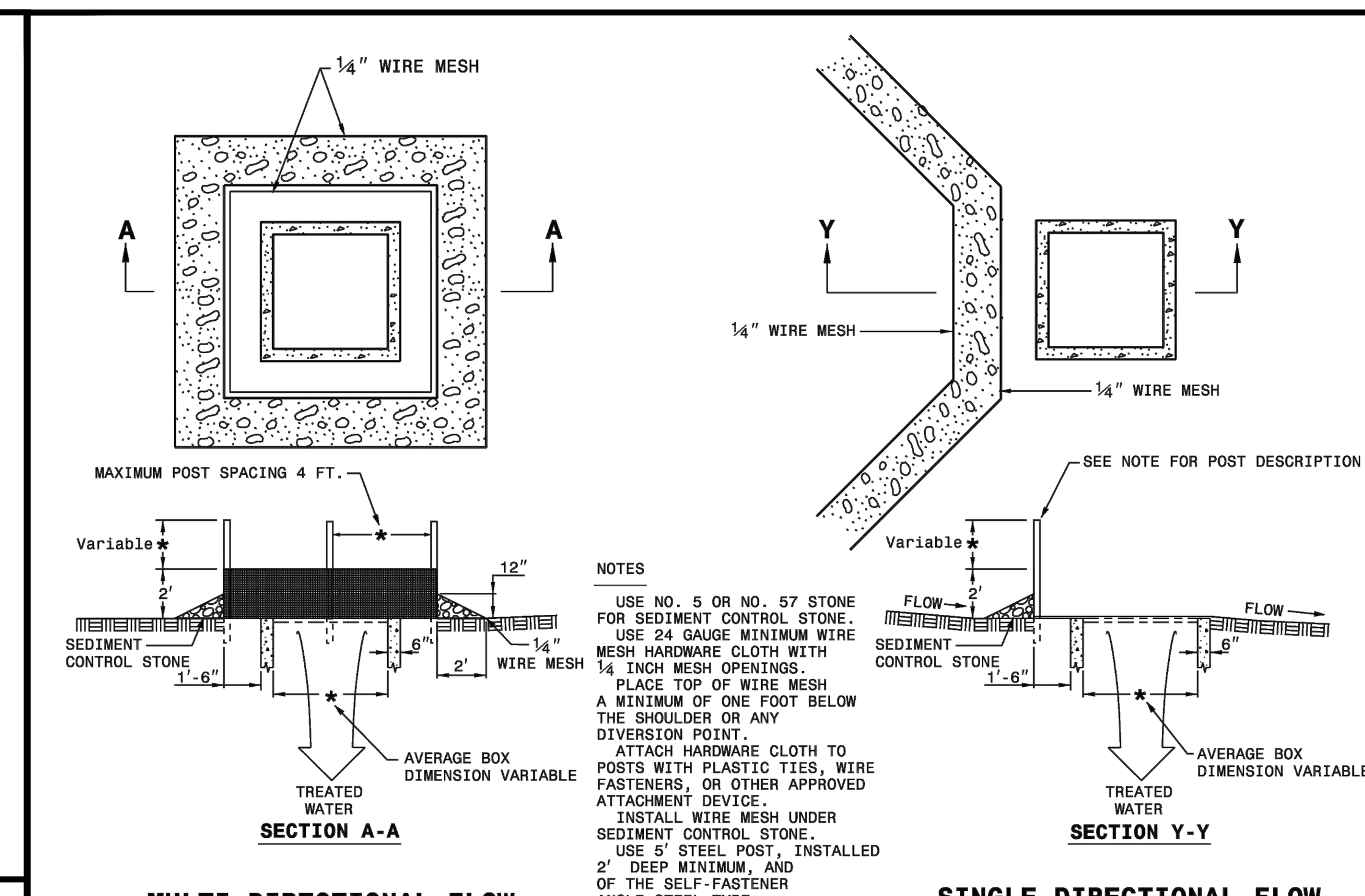
Scale:NTS — C4001



NOTES:

1. Multiuse trail shall be constructed of a minimum of 4" thick, air-entrained, 3000 PSI concrete (NCDOT Class A).
2. Construction or control joint shall be placed with a maximum spacing of 8', and at all intersections.

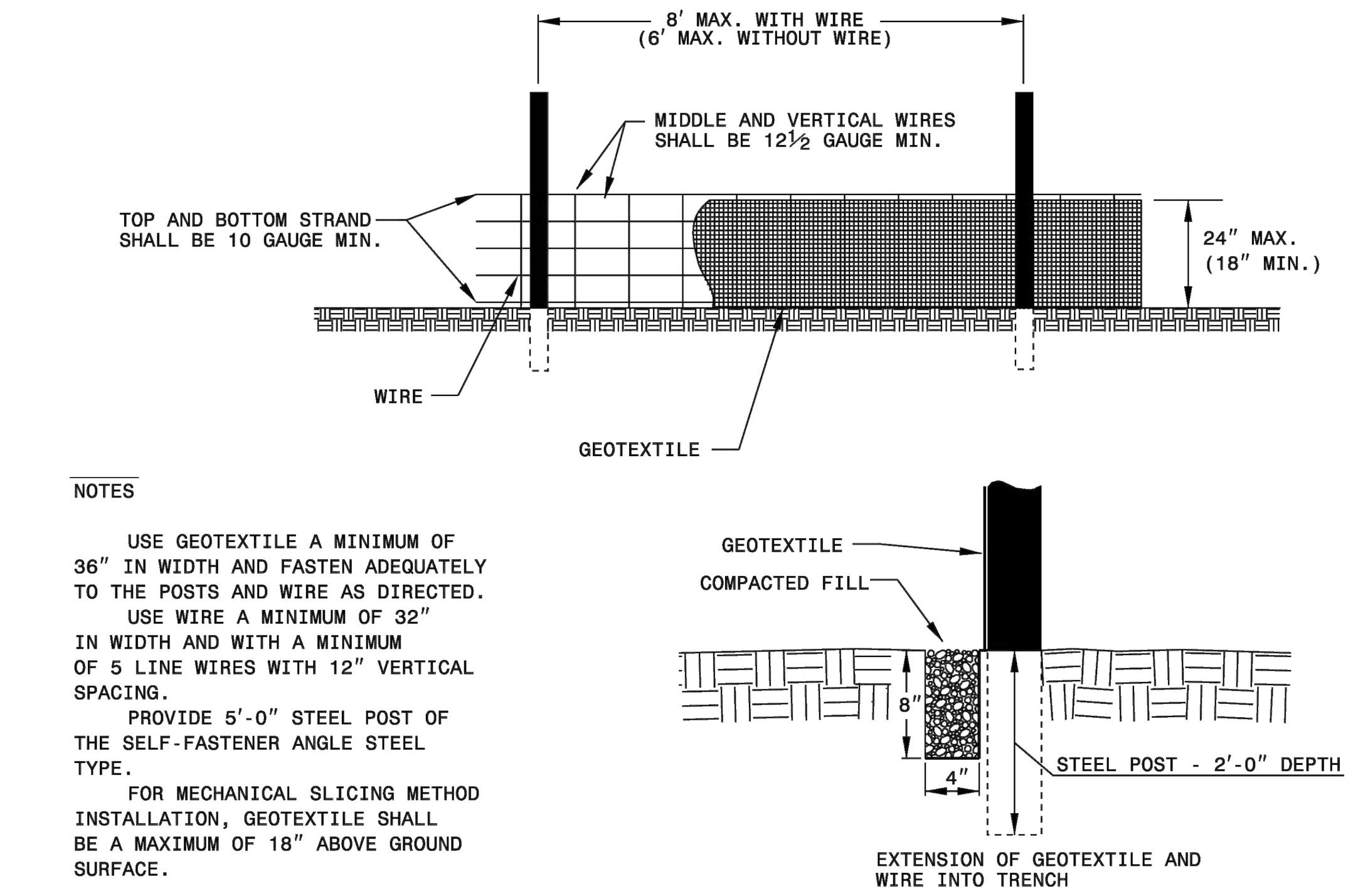
CONCRETE MULTIUSE TRAIL DETAILS
NOT TO SCALE



NOTES

USE NO. 5 OR NO. 57 STONE FOR SEDIMENT CONTROL STONE.
USE 24 GAUGE MINIMUM WIRE MESH HARDWARE CLOTH WITH ¼ INCH MESH OPENINGS.
PLACE TOP OF WIRE MESH A MINIMUM OF ONE FOOT BELOW THE SHOULDER OR ANY DIVERSION POINT.
ATTACH HARDWARE CLOTH TO POSTS WITH PLASTIC TIES, WIRE FASTENERS, OR OTHER APPROVED ATTACHMENT DEVICE.
INSTALL WIRE MESH UNDER SEDIMENT CONTROL STONE.
USE 5' STEEL POST, INSTALLED 2' DEEP MINIMUM, AND OF THE SELF-FASTENER ANGLE STEEL TYPE.
SPACE POST A MAXIMUM OF 4'.

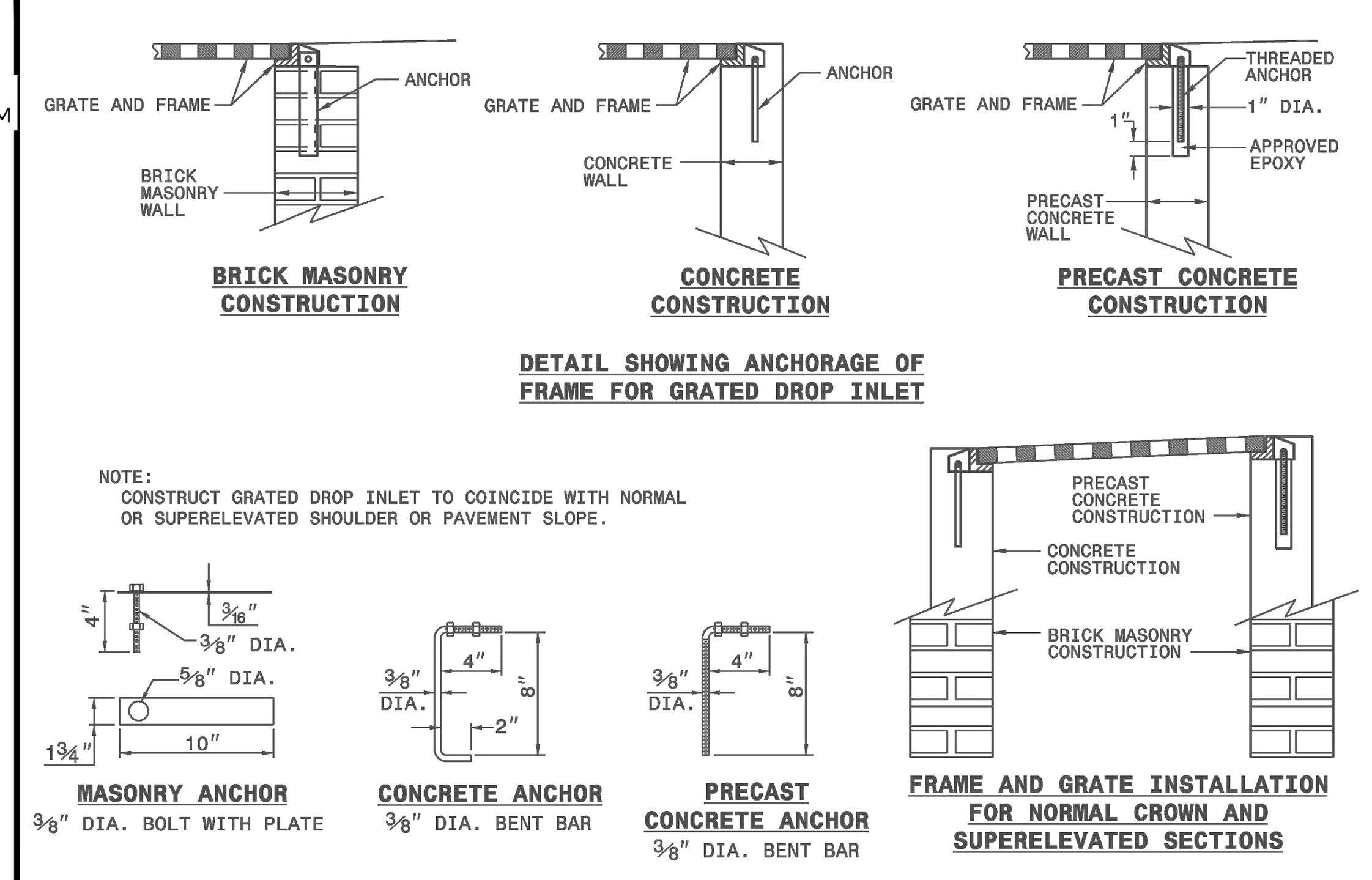
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
ROADWAY STANDARD DRAWING FOR ROCK INLET SEDIMENT TRAP TYPE C
SHEET 1 OF 1 — 1632.03



NOTES

USE GEOTEXTILE A MINIMUM OF 36" IN WIDTH AND FASTEN ADEQUATELY TO THE POSTS AND WIRE AS DIRECTED.
USE WIRE A MINIMUM OF 32" IN WIDTH AND WITH A MINIMUM OF 5 LINE WIRES WITH 12" VERTICAL SPACING.
PROVIDE 5'-0" STEEL POST OF THE SELF-FASTENER ANGLE STEEL TYPE.
FOR MECHANICAL SLICING METHOD INSTALLATION, GEOTEXTILE SHALL BE A MAXIMUM OF 18" ABOVE GROUND SURFACE.

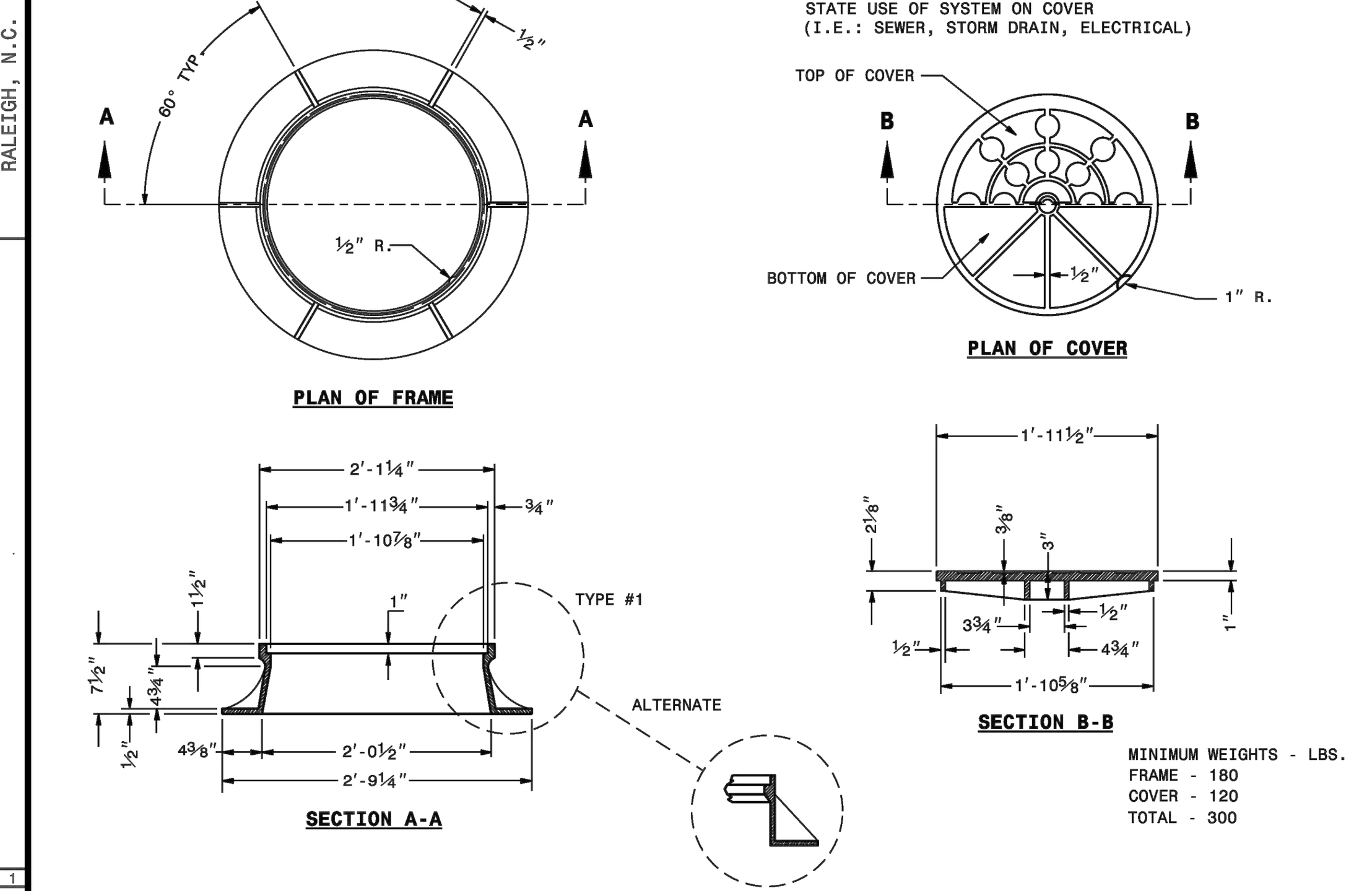
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
ROADWAY STANDARD DRAWING FOR TEMPORARY SILT FENCE
SHEET 1 OF 1 — 1605.01



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

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
ROADWAY STANDARD DRAWING FOR ANCHORAGE FOR FRAMES BRICK/CONCRETE/PRECAST CONCRETE
SHEET 1 OF 1 — 840.25

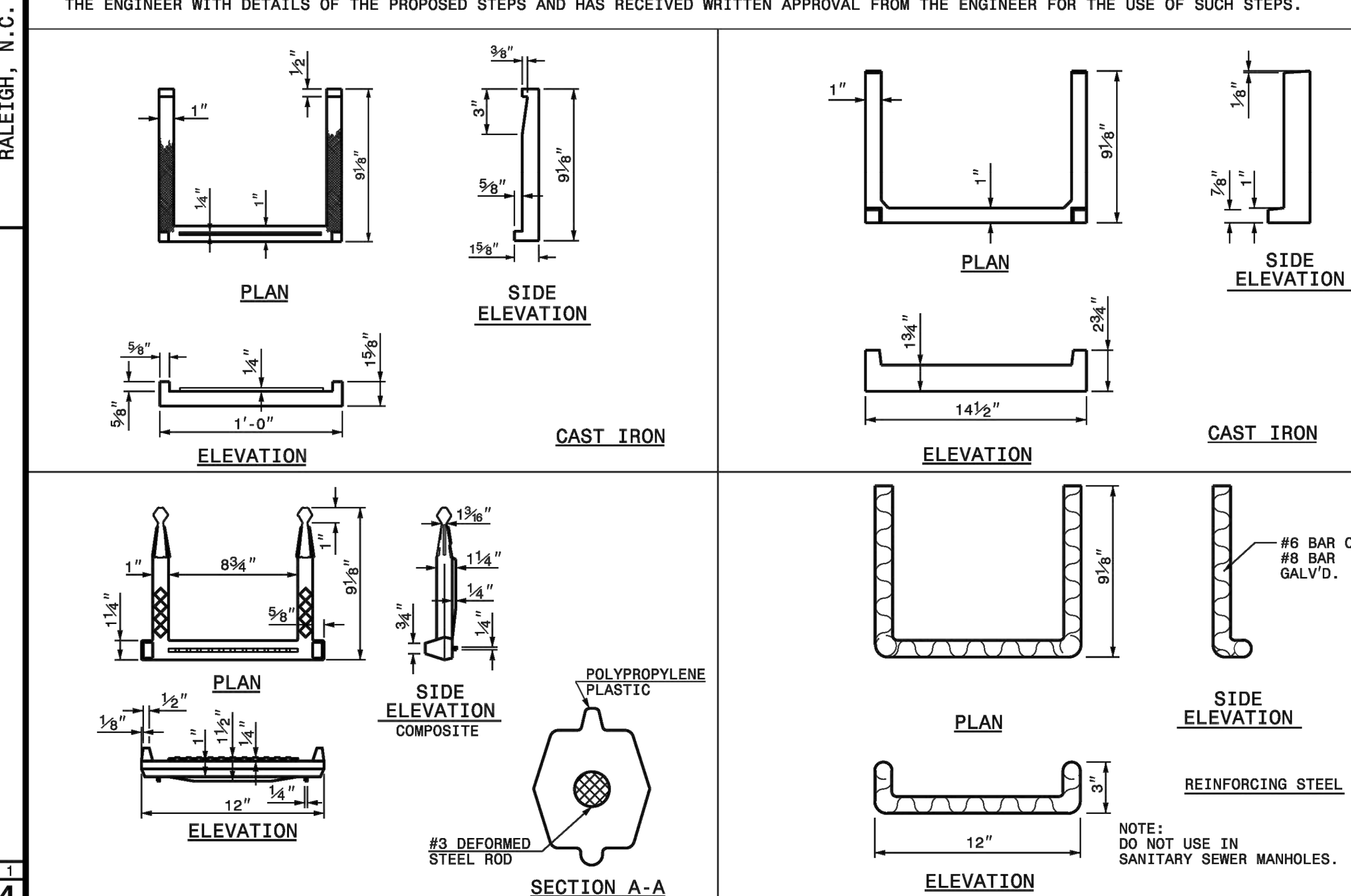
SOLID COVER SHOWN PERFORATED. PERFORATED AVAILABLE IF SPECIFIED.
STATE USE OF SYSTEM ON COVER (I.E.: SEWER, STORM DRAIN, ELECTRICAL)



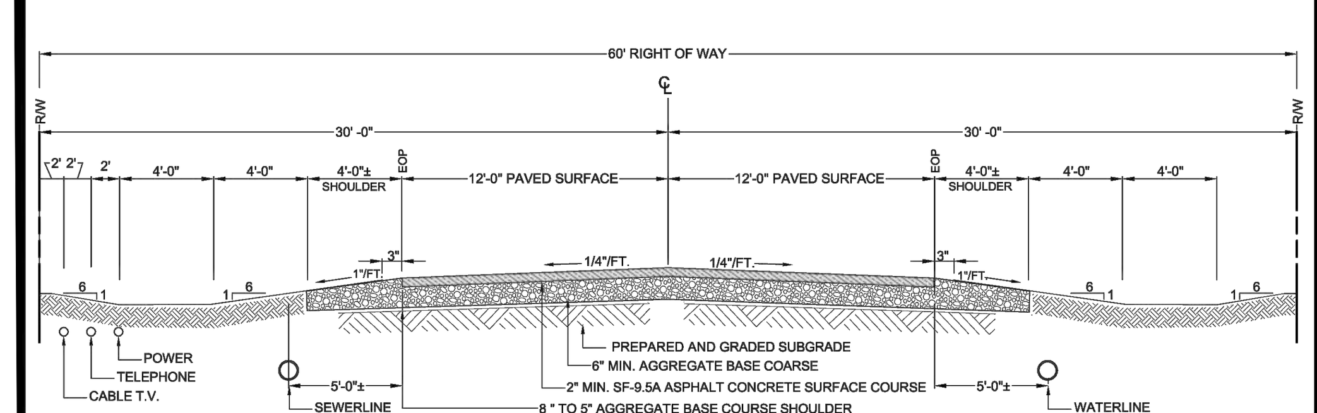
MINIMUM WEIGHTS - LBS.
FRAME - 180
COVER - 120
TOTAL - 300

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
ROADWAY STANDARD DRAWING FOR MANHOLE FRAME AND COVER
SHEET 1 OF 1 — 840.54

NOTES:
INSTALL ALL STEPS PROTRUDING 4" FROM INSIDE FACE OF STRUCTURE WALL.
STEPS DIFFERING IN DIMENSIONS, CONFIGURATION, OR MATERIALS FROM THOSE SHOWN MAY ALSO BE USED PROVIDED THE CONTRACTOR HAS FURNISHED THE ENGINEER WITH DETAILS OF THE PROPOSED STEPS AND HAS RECEIVED WRITTEN APPROVAL FROM THE ENGINEER FOR THE USE OF SUCH STEPS.

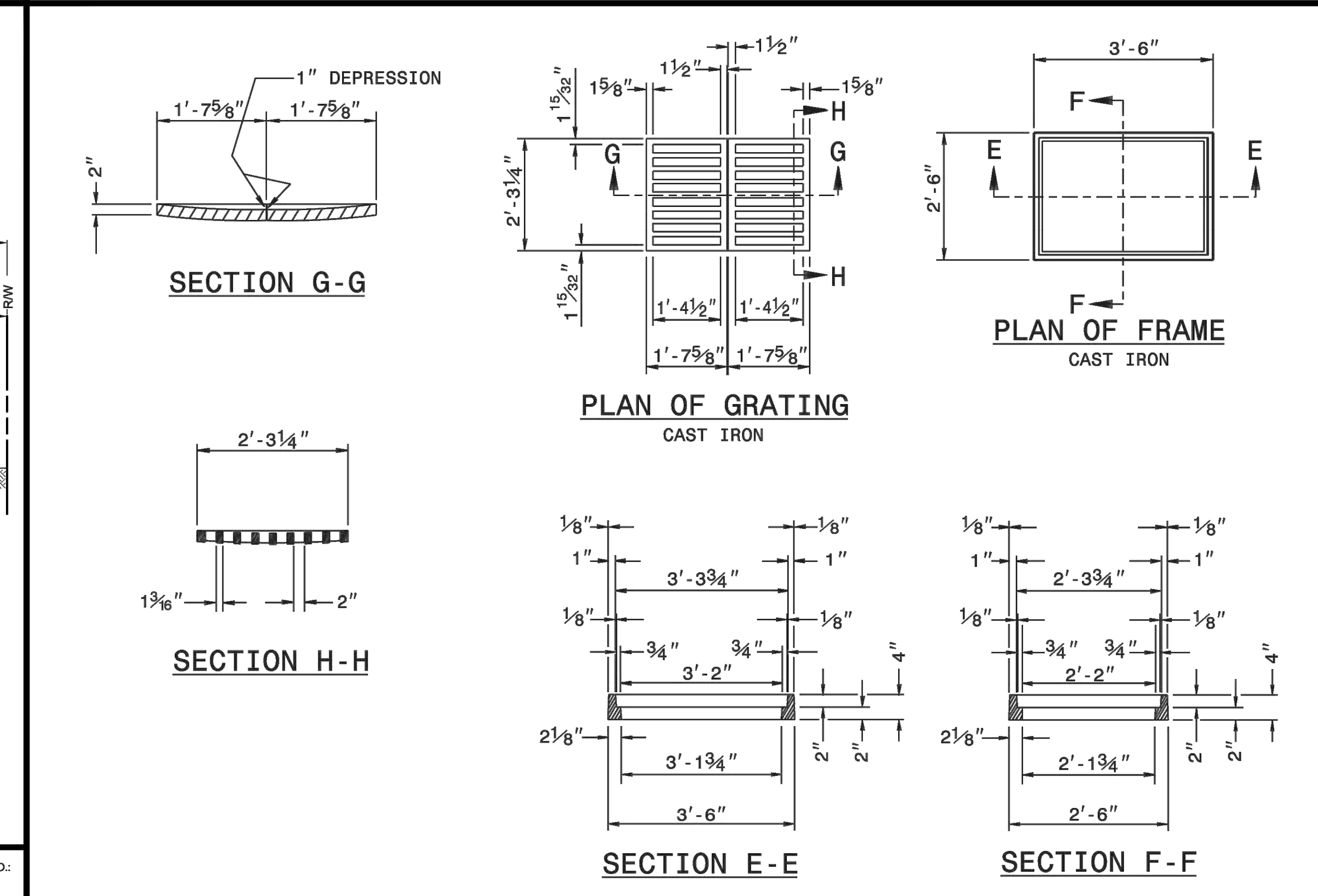


STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
ROADWAY STANDARD DRAWING FOR DRAINAGE STRUCTURE STEPS
SHEET 1 OF 1 — 840.66

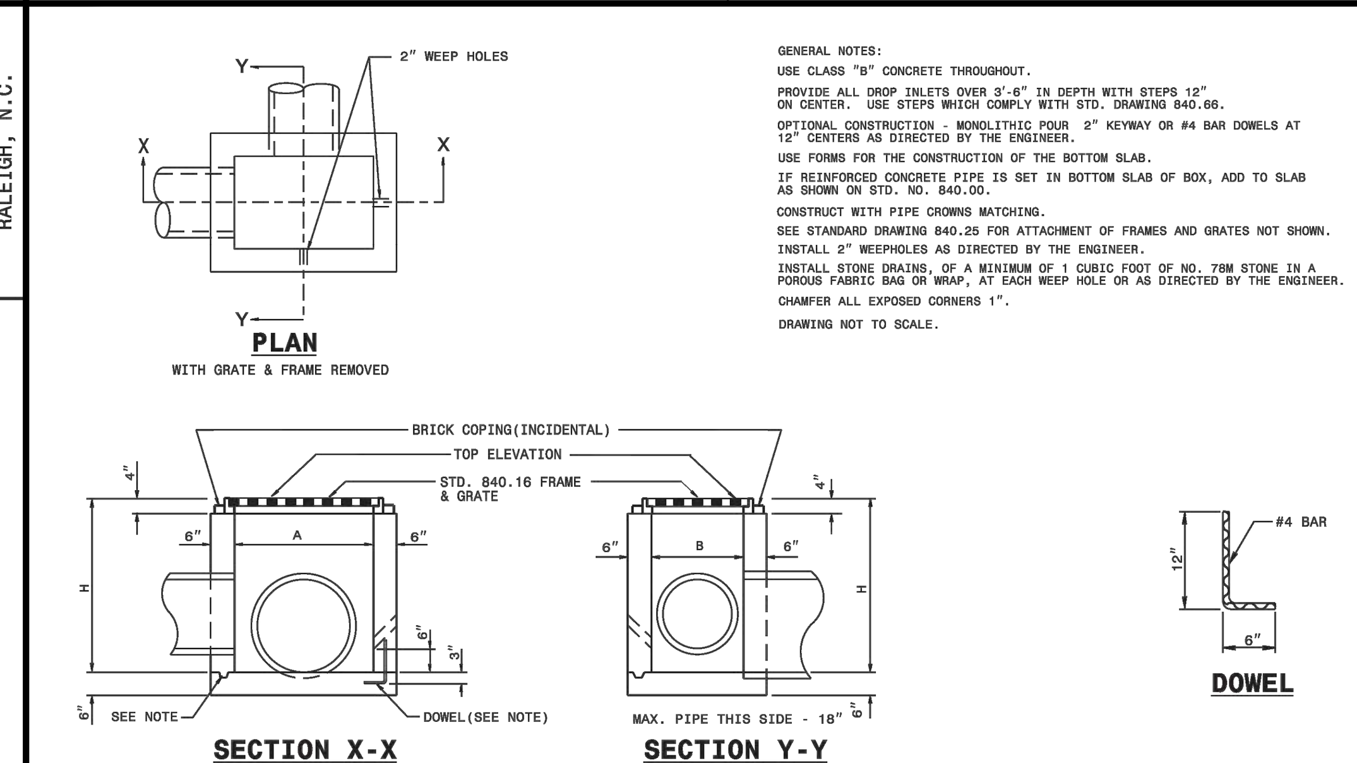


NOTE:
A 0.18 TO 0.45 GAL/SYD PRIME COAT IS REQUIRED ON AGGREGATE BASE COURSE. THE PAVEMENT DESIGN SHOWN ARE MINIMUM THICKNESSES AND SHOULD BE DESIGNED BASED UPON SUBGRADE SOIL CONDITIONS AND PLANNED TRAFFIC LOADING IMPACTS. NO BASE COURSE SHALL BE PLACED ON MUCK, CLAY, ORGANIC MATTER OR OTHER UNSUITABLE MATERIAL. OTHER BASE COURSES MAY BE USED IN LIEU OF THOSE SHOWN ABOVE. ALTERNATE MATERIALS SHALL BE OF SUFFICIENT THICKNESS TO PROVIDE EQUIVALENT STRENGTH AND SHALL BE APPROVED BY THE TOWN ENGINEER.

TOWN OF NAGS HEAD DEPARTMENT OF ADMINISTRATION P.O. BOX 99 NAGS HEAD, NC 27959 252.441.7016 • www.nagsheadnc.gov
LOCAL ACCESS STREET TYPICAL CROSS SECTION
DETAIL NO.: 301



STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
ROADWAY STANDARD DRAWING FOR DROP INLET FRAME AND GRATES FOR USE WITH STD. DWG.S 840.14 AND 840.15
840.16



GENERAL NOTES:

USE CLASS "B" CONCRETE THROUGHOUT.

PROVIDE ALL DROP INLETS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.

OPTIONAL CONSTRUCTION - MONOLITHIC POUR 2" KEYWAY OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.

USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.

IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.

CONSTRUCT WITH PIPE CROWNS MATCHING.

SEE STANDARD DRAWING 840.25 FOR ATTACHMENT OF FRAMES AND GRATES NOT SHOWN.

INSTALL 2" WEEPHOLES AS DIRECTED BY THE ENGINEER.

INSTALL STONE DRAINS, OF A MINIMUM OF 1 CUBIC FOOT OF NO. 78M STONE IN A POROUS FABRIC BAG OR WRAP, AT EACH WEEP HOLE OR AS DIRECTED BY THE ENGINEER.

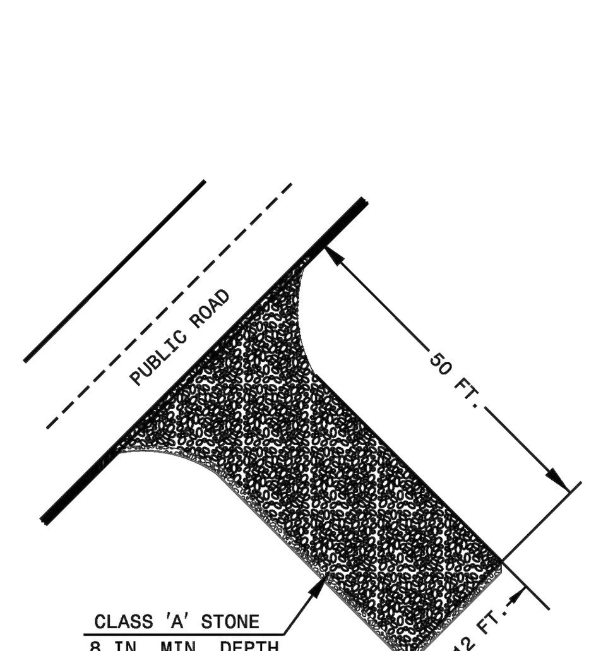
CHAMFER ALL EXPOSED CORNERS 1".

DRAWING NOT TO SCALE.

DIMENSIONS AND QUANTITIES FOR DROP INLET (BASED ON MIN. HEIGHT, H)

DIMENSIONS OF BOX & PIPE				CUBIC YARDS CONC. IN BOX			DEDUCTIONS FOR ONE PIPE	
PIPE	SPAN	WIDTH	MIN. HEIGHT					
D	A	B	H	BOTTOM SLAB	WALL PER FT. HT.	TOTAL CONCRETE FOR MINIMUM HEIGHT, H	C.M.	R.C.
12"	3'-0"	2'-0"	2'-0"	0.222	0.222	0.592	0.015	0.026
15"			2'-3"			0.648	0.023	0.036
18"			2'-6"			0.703	0.033	0.049
24"			3'-0"			0.814	0.059	0.085
30"	3'-0"	2'-0"	3'-6"	0.222	0.222	0.925	0.092	0.127

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
ROADWAY STANDARD DRAWING FOR CONCRETE DROP INLET 12" THRU 30" PIPE
840.14

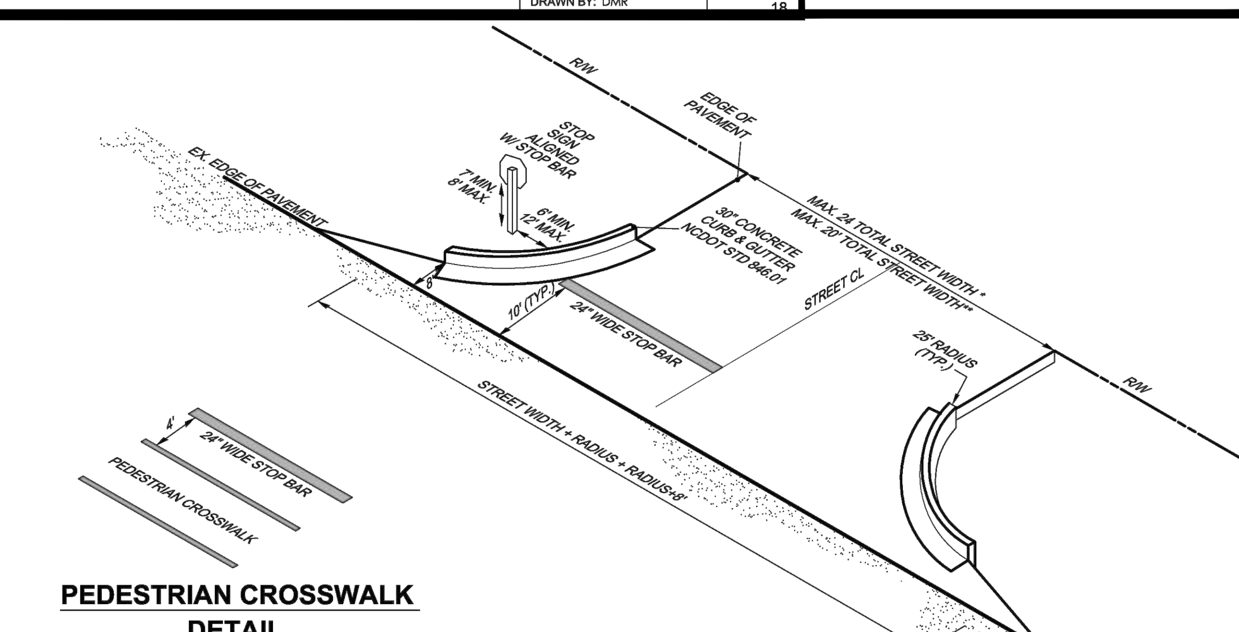


NOTES

1. PROVIDE TURNING RADIUS SUFFICIENT TO ACCOMMODATE LARGE TRUCKS.
2. LOCATE ENTRANCES TO PROVIDE FOR UTILIZATION BY ALL CONSTRUCTION VEHICLES.
3. MUST BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR DIRECT FLOW OF MUD ONTO STREETS. PERIODIC TOPDRESSING WITH STONE WILL BE NECESSARY.
4. ANY MATERIAL TRACKED ONTO THE ROADWAY MUST BE CLEANED UP IMMEDIATELY.
5. LOCATE GRAVEL CONSTRUCTION ENTRANCE AT ALL POINTS OF INGRESS AND EGRESS UNTIL SITE IS STABILIZED. PROVIDE FREQUENT CHECKS OF THE DEVICE AND TIMELY MAINTENANCE.
6. NUMBER AND LOCATION OF CONSTRUCTION ENTRANCES TO BE DETERMINED BY THE ENGINEER.
7. USE CLASS 'A' STONE OR OTHER COARSE AGGREGATE APPROVED BY THE ENGINEER.
8. INSTALL CONSTRUCTION ENTRANCES IN A WAY TO PREVENT VEHICLES FROM BYPASSING CONSTRUCTION ENTRANCE LEAVING PROJECT SITE.

NOTE: PLACE GEOTEXTILE FOR DRAINAGE BENEATH STONE

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
ROADWAY STANDARD DRAWING FOR GRAVEL CONSTRUCTION ENTRANCE
SHEET 1 OF 1 — 1607.01

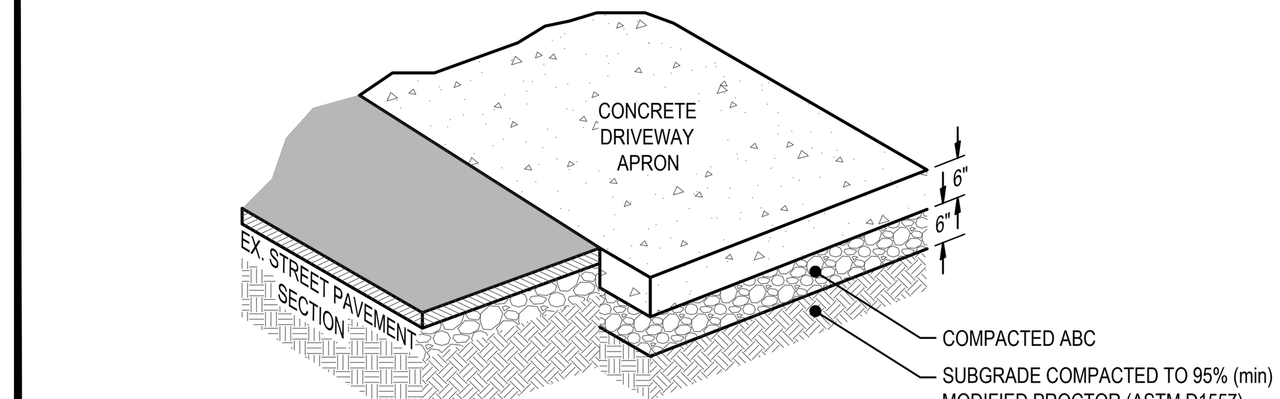


PEDESTRIAN CROSSWALK DETAIL

NOTES:

1. Stop Bar shall span across the approach lane and shall installed parallel to the intersecting roadway.
2. Special conditions may warrant exceptions to this detail. The stop bar shall not be placed less than 4 ft. or greater than 30' from the nearest edge of the intersecting roadway.
3. The placement of the stop bar shall be placed so that vehicles have the optimum sight distance along intersecting roadways.
4. The stop sign shall not be blocked by other signs or vegetation and shall be positioned so to face approaching vehicular traffic.
5. The stop bar shall be installed a minimum of 4' offset from a pedestrian crosswalk if one exists.

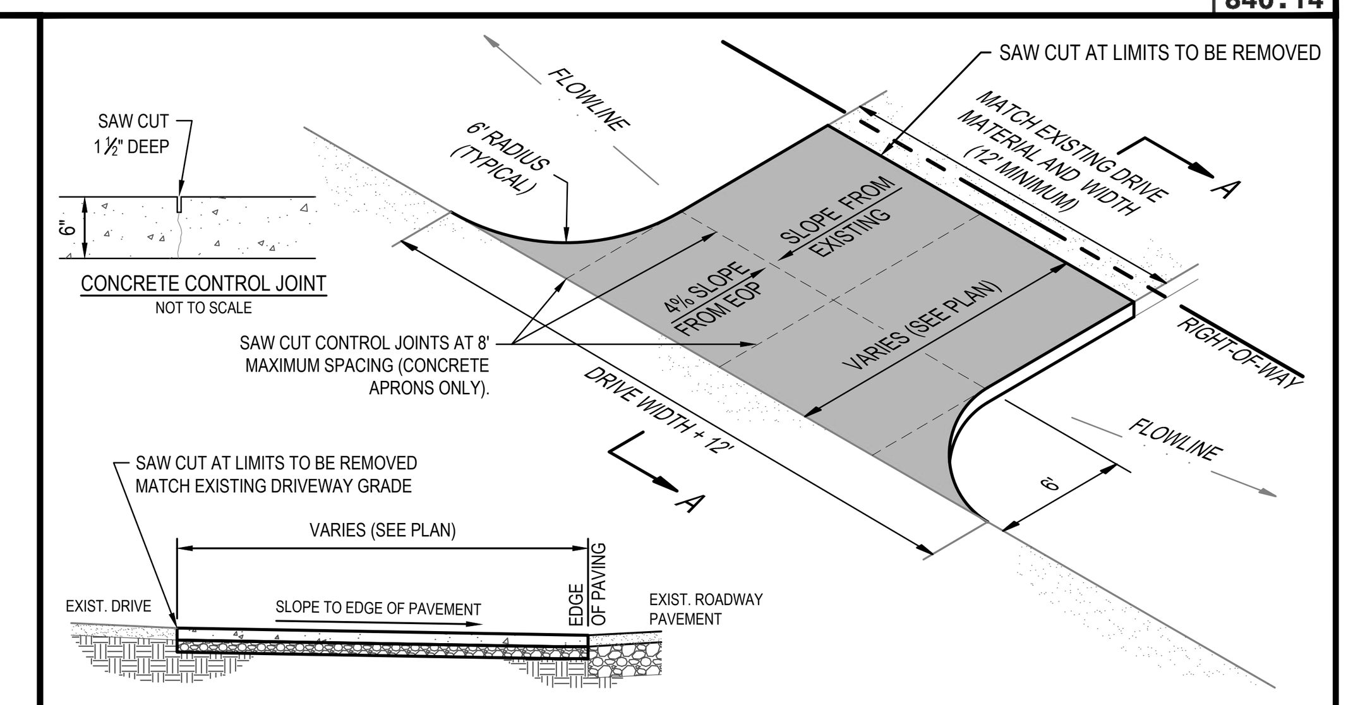
TOWN OF NAGS HEAD DEPARTMENT OF ADMINISTRATION P.O. BOX 99 NAGS HEAD, NC 27959 252.441.7016 • www.nagsheadnc.gov
TYPICAL STREET STOP SIGN AND AND STOP BAR PLACEMENT
* WIDTH FOR COLLECTOR AND LOCAL ACCESS STREETS
** WIDTH FOR SUBCOLLECTOR AND ENVIRONMENTAL STREETS
SCALE: NONE; ISSUE DATE: 8-13-2015; REVISION DATE: 1-3-2019; SHEET NO: 1 OF 1; DRAWN BY: DMR
DETAIL NO.: 300



NOTES:

1. Contractor shall sawcut existng pavement straight and true prior to driveway apron installation.
2. Contractor shall contact the Department of Public Works prior to concrete installation to confirm compliance.
3. Special conditions may warrant exceptions to this detail. Subject to prior approval by Town Engineer or Public Works Director.
4. If the street pavement section is damaged during construction activity, the contractor shall patch the pavement section to teh same pavement cross section that existed prior to the commencement of construction.
5. Concrete driveway aprons for this project shall be constructed of a minimum of 6" thick, air-entrained, 3000 PSI concrete (NCDOT Class A).
6. Driveway subgrade shall be compacted to 95% (minimum) of Modified Proctor (ASTM D1557) prior to placement of base.

RESIDENTIAL DRIVEWAY APRON THICKENED EDGE
(THIS DETAIL APPLIES TO CONCRETE DRIVEWAY INSTALLATION FOR THIS PROJECT ONLY)
NOT TO SCALE
ADAPTED FROM TOWN OF NAGS HEAD DETAIL NO. 101



NOTES:

1. All driveways must meet current Town requirements and NCDOT requirements for spacing, sight distance, and offsets from property lines and intersections.
2. Driveway aprons shall be constructed of a minimum of 6" thick, air-entrained, 3000 PSI concrete (NCDOT Class A) with 6" ABC base course, or 6" ABC base course with a 2" asphalt surface course (S9.5 C). (Material to match existing driveway.)
6. Driveway subgrade shall be compacted to 95% (minimum) of Modified Proctor (ASTM D1557) prior to placement of base.

RESIDENTIAL DRIVEWAY APRON REPLACEMENT
NOT TO SCALE
ADAPTED FROM TOWN OF NAGS HEAD DETAIL NO. 100

FINAL DRAWING
FOR REVIEW PURPOSES ONLY
NOT RELEASED FOR CONSTRUCTION

WithersRavenel
137 S Wilmington Street | Suite 200 | Raleigh, NC 27601
License #: F-1479 | t: 919.469.3340 | www.withersravenel.com
our people • your success

THE TOWN OF NAGS HEAD 1961
Post Office Box 99
Nags Head, NC 27959

CONSTRUCTION DRAWINGS
SOUTH OREGON INLET ROAD
STORMWATER INFRASTRUCTURE IMPROVEMENTS
AREA 13
Town Of Nags Head | Dare County | North Carolina

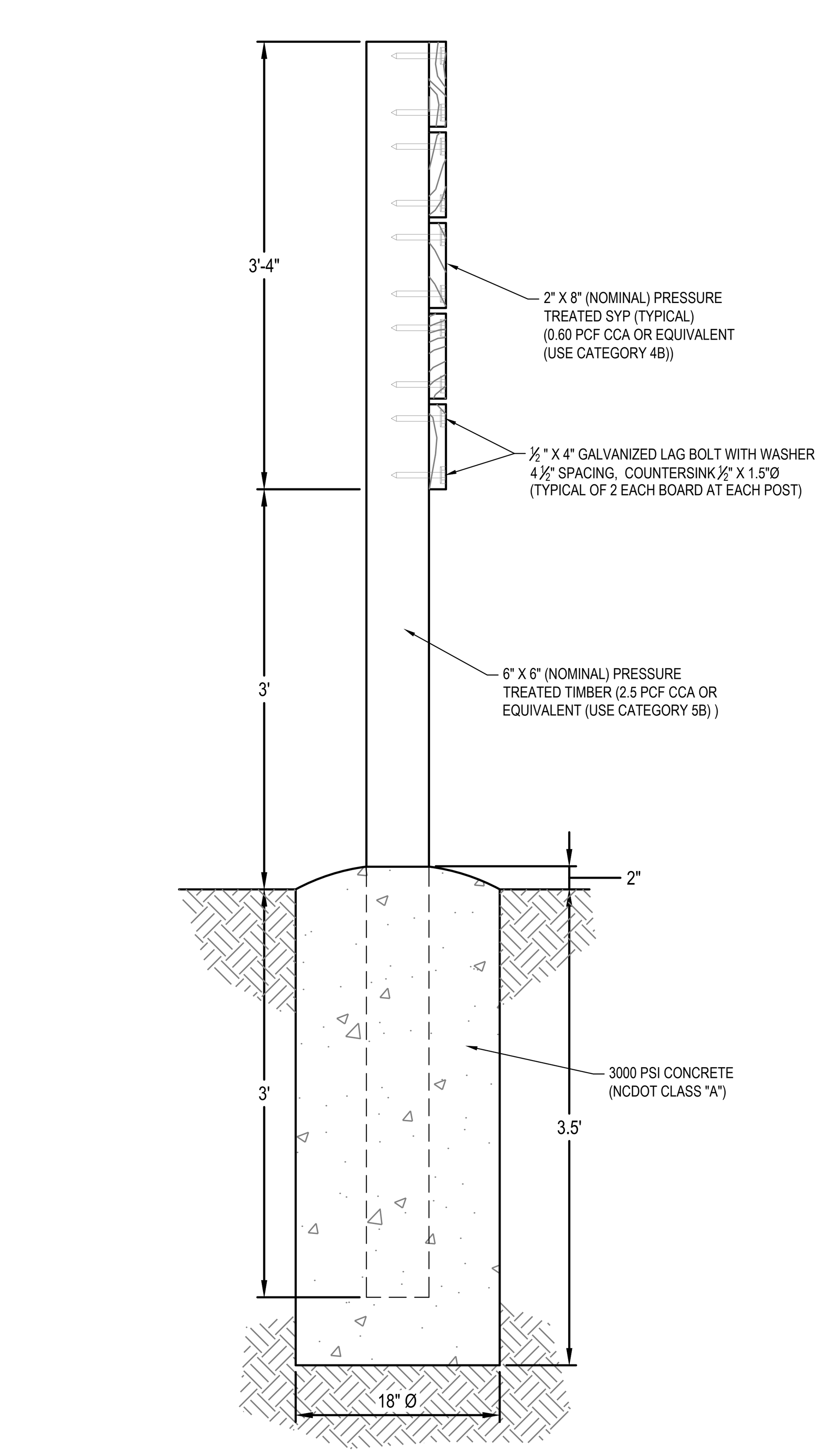
NORTH CAROLINA PROFESSIONAL SEAL 047183 ENGINEER DARWICHE EL SABEH
3/5/2025

INITIAL PLAN DATE: 02/29/2024
REVISIONS:
01/22/2025

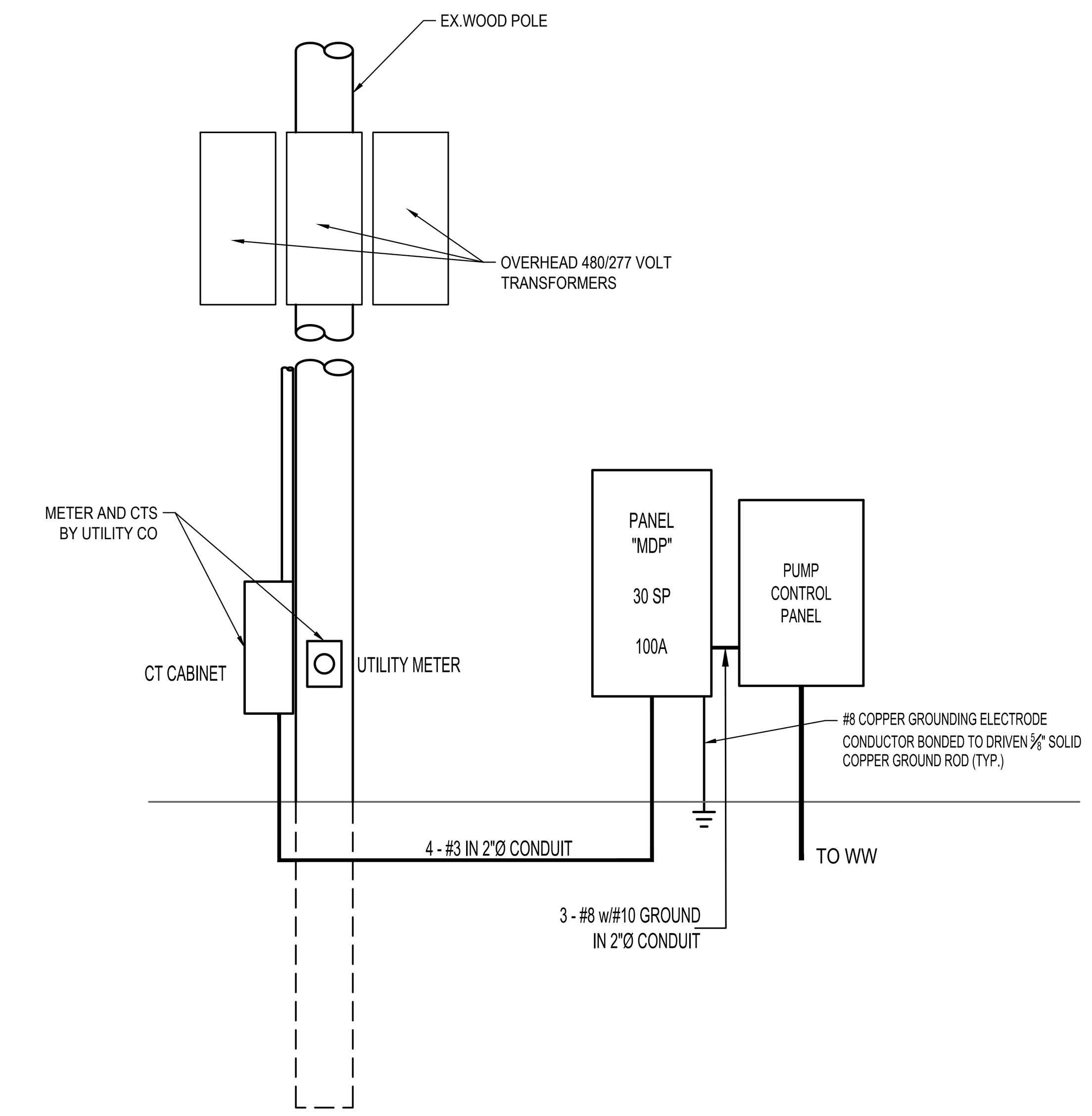
WR JOB NUMBER 03210159.03
DRN: BGB DGN: BGB CKD: DNS/APH

DETAILS

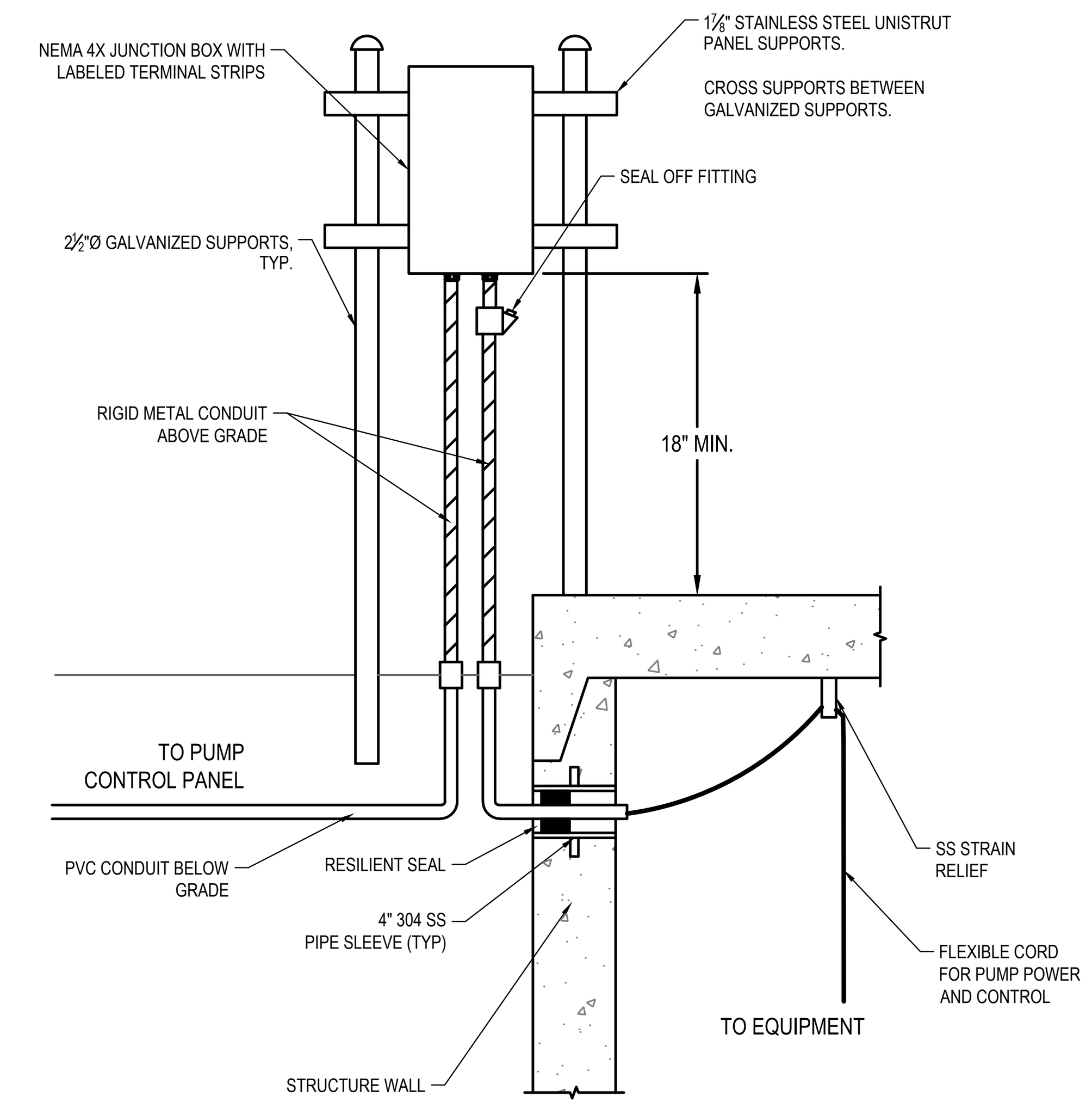
5.00



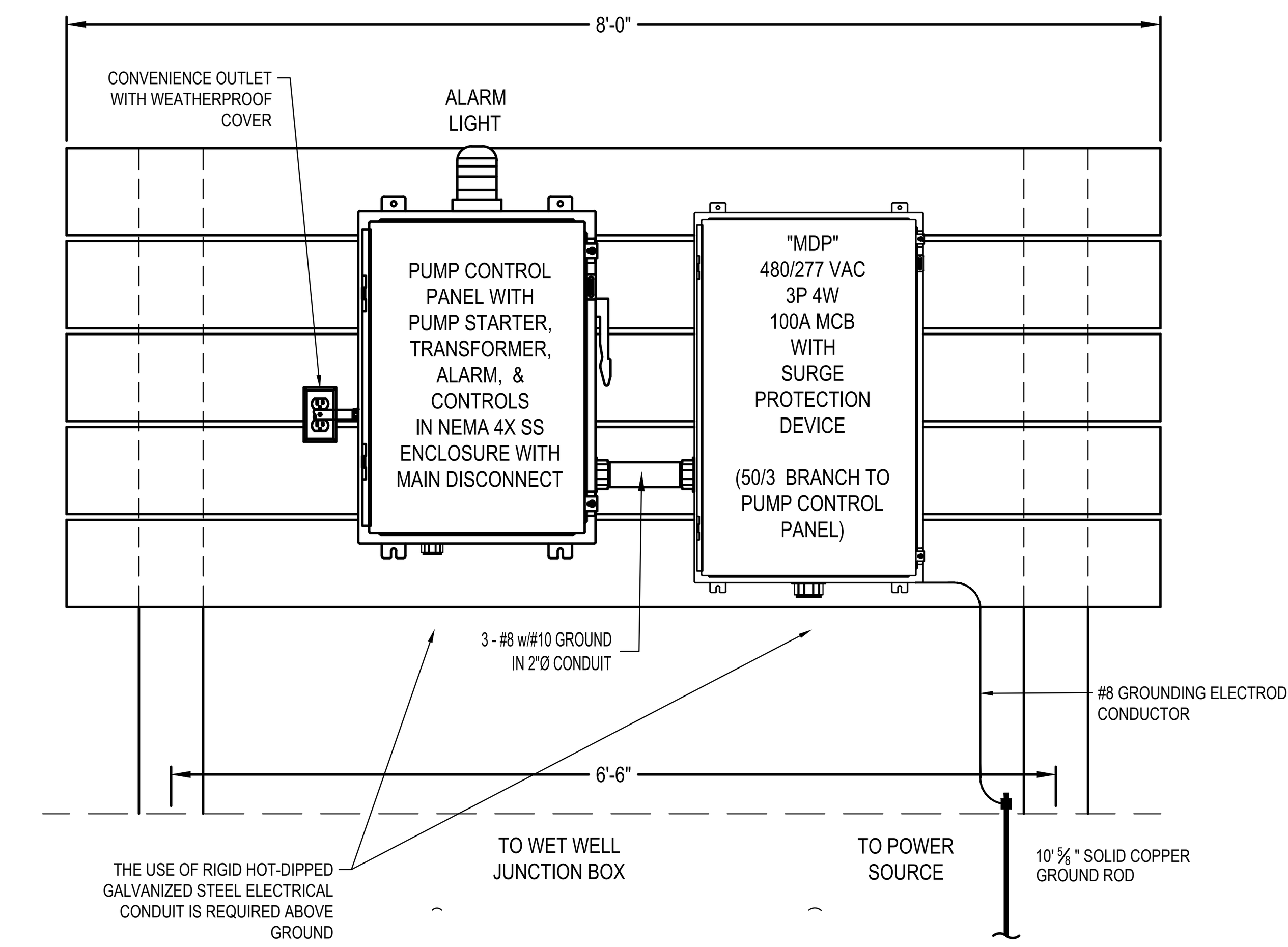
EQUIPMENT PANEL BACKING
NOT TO SCALE



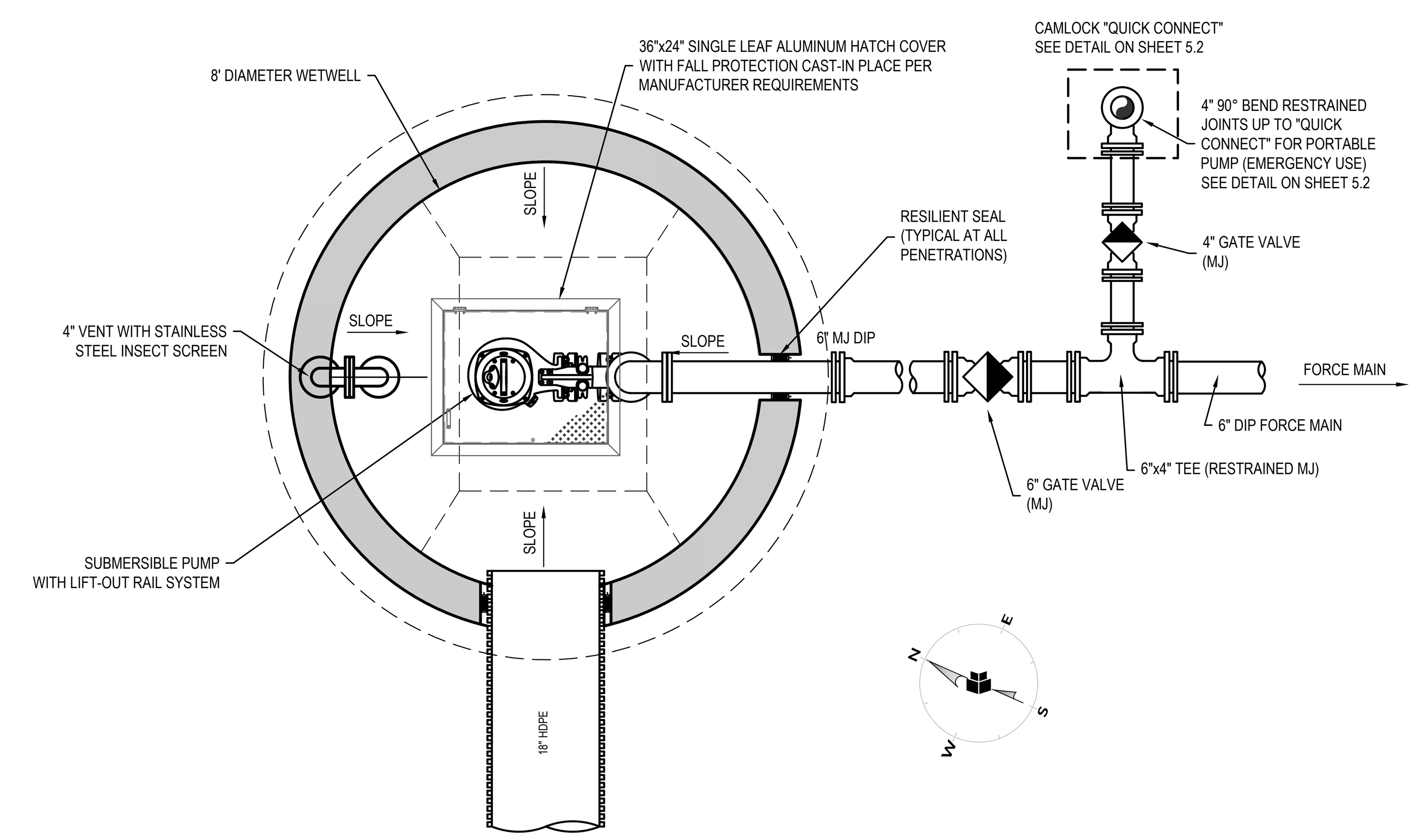
ELECTRICAL RISER SCHEMATIC
NOT TO SCALE



JUNCTION BOX @ WETWELL
NOT TO SCALE

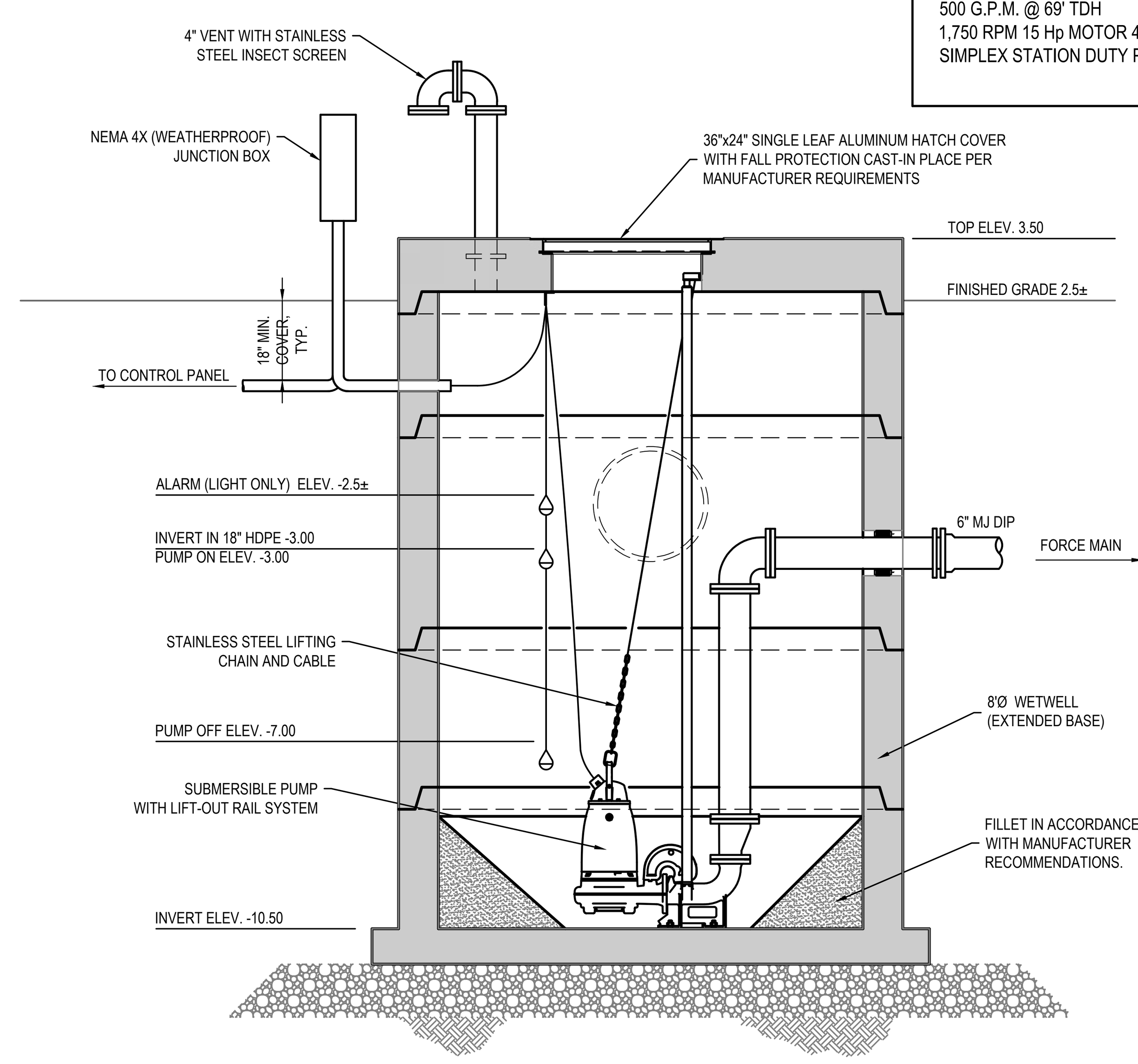


CONTROL PANEL LAYOUT
NOT TO SCALE



PUMP STATION PLAN
NOT TO SCALE

OPERATING CONDITIONS
500 G.P.M. @ 69' TDH
1,750 RPM 15 Hp MOTOR 480V 3Ø
SIMPLEX STATION DUTY POINT



PUMP STATION SECTION
NOT TO SCALE

PANEL SCHEDULE: PANEL "MDP" | 3 PHASE | 4 WIRE | VOLTAGE LL: 480 | VOLTAGE LG: 277
OC DEVICES: BREAKERS | DEVICE FAMILY: BOLT ON | MOUNTING: SURFACE | ENCLOSURE: NEMA 4X
COMMENTS: 30 SPACE, 100A MAIN BREAKER | BUS RATING: 100A | AVAILABLE FAULT DUTY: *****K A 3 PHASE

Ckt. No.	DESCRIPTION/ LOCATION	"LOAD CRITERIA" TYPE	EA	QTY	DEM	TOTAL VA	REMARKS	DEVICE AMPS	P	PH	DEVICE AMPS	P	REMARKS	TOTAL VA	"LOAD CRITERIA" TYPE	EA	QTY	DEM	DESCRIPTION/ LOCATION	Ckt. No.
1	PUMP CONTROL PANEL (PUMP 15 HP)	MTR			9	7270	3-#8w/#10 GR	50	3	A										2
3					9	7270				B										4
5					9	7270				C										6
7										A										8
9										B										10
11										C										12
13										A										14
15										B										16
17										C										18
19										A										20
21										B										22
23										C										24
25										A										26
27										B										28
29										C										30

END USE LOADS:	PHASE A VA:	7270	PHASE B VA:	7270	PHASE C VA:	7270
TOTAL LOADS:	CONNECTED KVA:	21.8	DEMAND KVA:	21.8	DESIGN KVA	21.8
	CONNECTED FLA:	26.3	DEMAND FLA:	26.3	DESIGN FLA:	26.3

NOTE:
ALL HATCH COVERS, ENCLOSURES, SWITCHES, OUTLET COVERS, ETC. SHALL BE LOCKABLE. THE CONTRACTOR SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO ORDERING MATERIALS.

3/5/2025
ELECTRICAL DESIGN
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 9531 DONALD NICHOLAS KISLEY
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 024420 CHRISTOPHER N. HUFF
3/5/2025

FINAL DRAWING
FOR REVIEW PURPOSES ONLY
NOT RELEASED FOR CONSTRUCTION

WithersRavenel
137 S Wilmington Street | Suite 200 | Raleigh, NC 27601
License #: F-1479 | t: 919.469.3340 | www.withersravenel.com
our people • your success

THE TOWN OF NAGS HEAD 1961
Post Office Box 99
Nags Head, NC 27959

CONSTRUCTION DRAWINGS
SOUTH OREGON INLET ROAD
STORMWATER INFRASTRUCTURE IMPROVEMENTS
AREA 13
Town Of Nags Head | Dare County | North Carolina

INITIAL PLAN DATE: 02/29/2024
REVISIONS:
01/22/2025

WR JOB NUMBER 03210159.03
DRN: BGB DGN: BGB CKD: DNS/APH

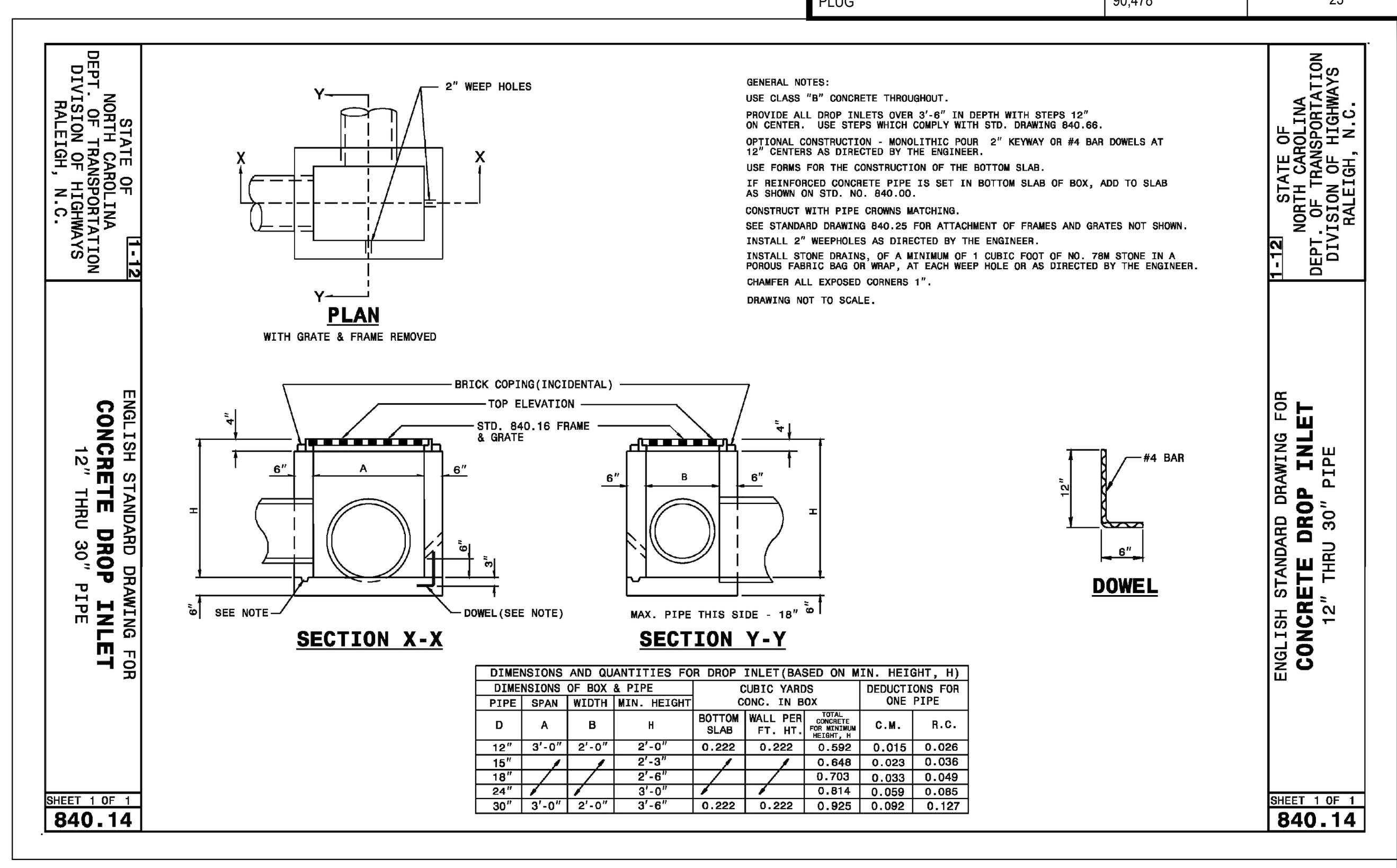
DETAILS

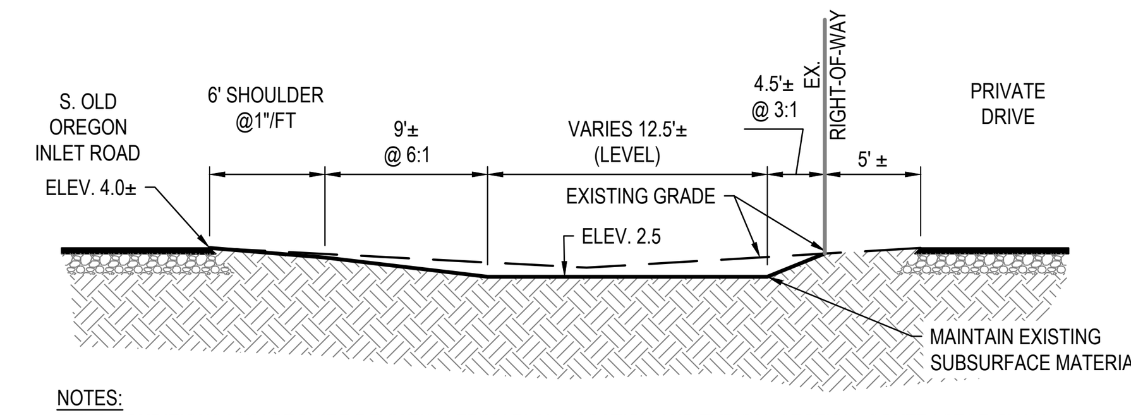
5.01

REACTION BEARING AREAS FOR HORIZONTAL WATER PIPE BENDS

(AREAS IN SQUARE FEET)

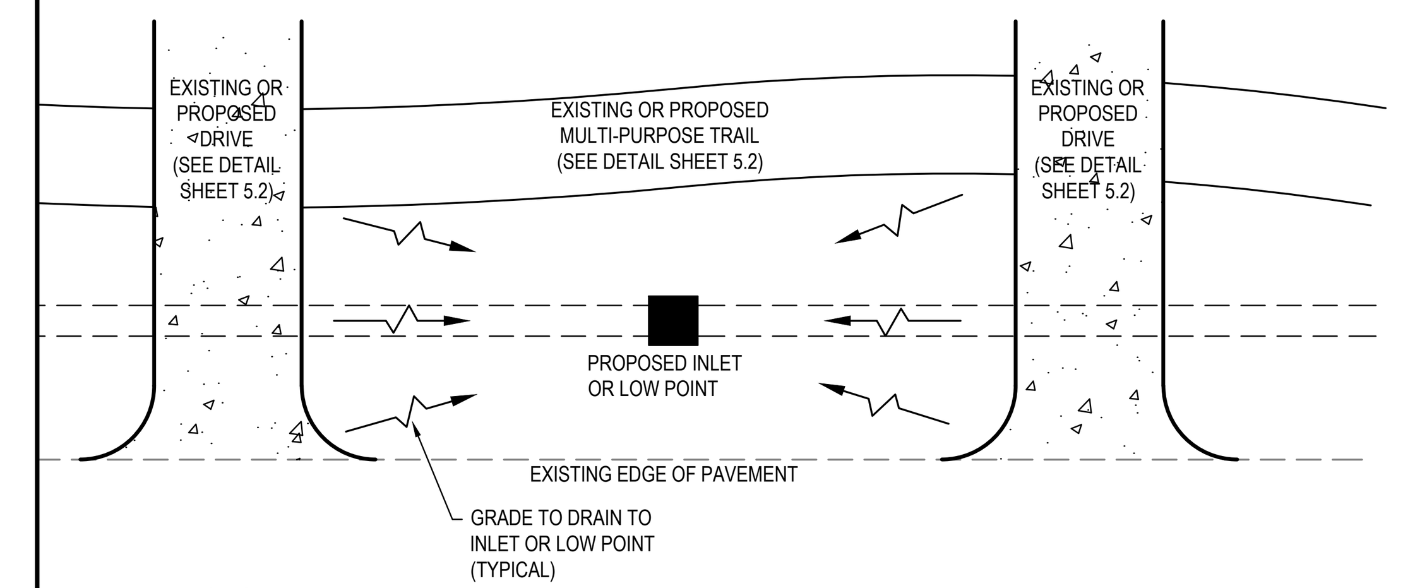
		SOIL DESCRIPTION AND ASSUMED BEARING CAPACITY (LBS./SF)							
		MODERATELY DRY CLAY	SOFT CLAY	GRAVEL/ COARSE SAND	DRY CLAY (ALWAYS DRY)	SAND (COMPACTED FIRM)	SAND (CLEAN, DRY)	"QUICKSAND" (VERY POOR SOIL)	ROCK (POOR)
SIZE and DEGREE OF BEND	STATIC THRUST (LBS.)	4,000 LBS./SF	2,000 LBS./SF	1,600 LBS./SF	8,000 LBS./SF	8,000 LBS./SF	4,000 LBS./SF	1,000 LBS./SF	10,000 LBS./SF
6"									
11 1/4°	1,108	1	1	1	1	1	1	2	1
22 1/2°	2,207	1	2	2	1	1	1	3	1
45°	4,328	2	3	3	1	1	2	5	1
90°	7,996	2	4	5	1	1	2	8	1
PLUG	5,655	2	3	4	1	1	2	6	1
8"									
11 1/4°	1,970	1	1	2	1	1	1	2	1
22 1/2°	3,922	1	2	3	1	1	1	4	1
45°	7,694	2	4	5	1	1	2	8	1
90°	14,215	4	8	9	2	2	4	15	2
PLUG	10,053	3	5	6	2	2	3	10	1
12"									
11 1/4°	4,433	2	3	3	1	1	2	5	1
22 1/2°	8,826	3	5	6	2	2	3	9	1
45°	17,312	5	9	11	3	3	5	18	2
90°	31,983	8	16	19	4	4	8	32	4
PLUG	22,619	6	12	14	3	3	6	23	3
16"									
11 1/4°	7,881	2	4	5	1	1	2	8	1
22 1/2°	15,691	4	8	10	2	2	4	16	2
45°	30,779	8	16	19	4	4	8	31	4
90°	56,861	15	29	35	8	8	15	57	6
PLUG	40,213	10	21	25	5	5	10	41	5
24"									
11 1/4°	17,734	5	9	11	3	3	5	18	2
22 1/2°	35,305	9	18	22	5	5	9	36	4
45°	69,252	18	35	42	9	9	18	70	7
90°	127,936	32	64	77	16	16	32	128	13
PLUG	90,478	23	46	55	12	12	23	91	10





NOTES:
FIELD CONDITIONS MAY REQUIRE DEVIATION FROM PLAN LOCATION AND TYPICAL SECTION. CONTRACTOR SHALL COORDINATE ALL DEVIATIONS WITH THE TOWN AND THE ENGINEER.

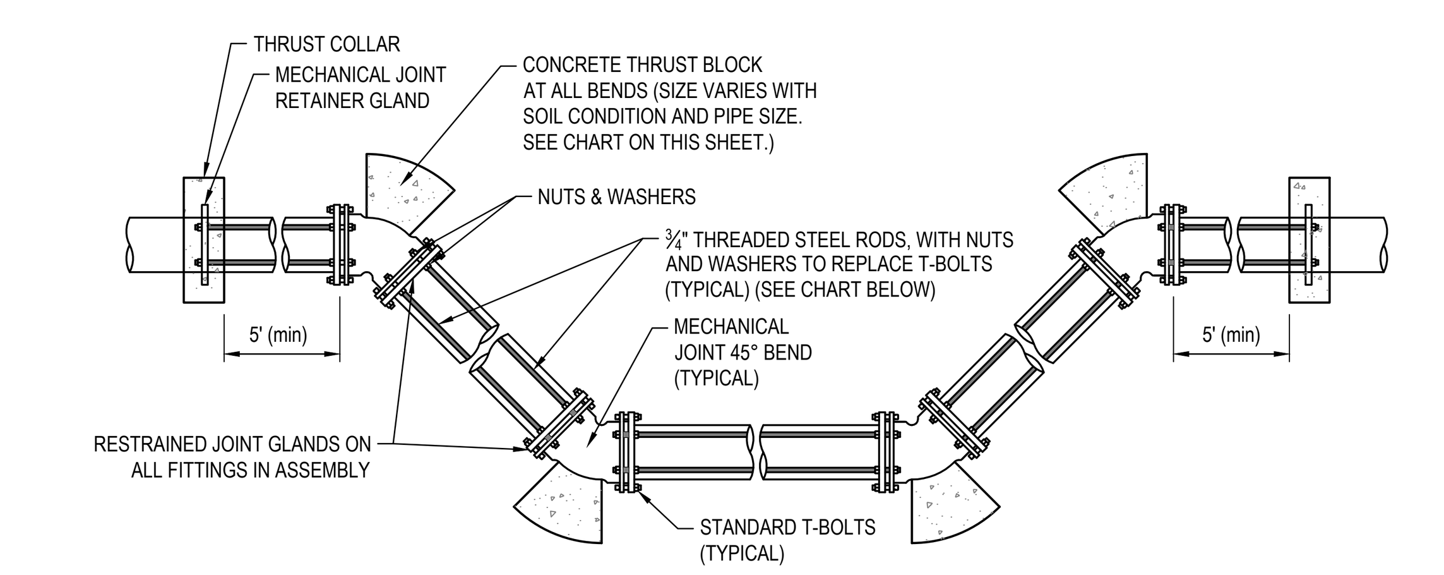
INFILTRATION BASIN DETAIL
S. OLD OREGON INLET ROAD
STA. 50+00± TO STA. 56+25±
TYPICAL SECTION VIEW
NOT TO SCALE



NOTES:
INLET OR LOW POINT ELEVATION IS TYPICALLY SET APPROXIMATELY 6 INCHES BELOW THE LOWEST EDGE OF PAVEMENT ELEVATION FOR EACH AREA.

FIELD CONDITIONS MAY REQUIRE DEVIATION FROM PLAN LOCATION AND TYPICAL SECTION. CONTRACTOR SHALL COORDINATE ALL DEVIATIONS WITH THE TOWN AND THE ENGINEER.

TYPICAL SHOULDER GRADING
OLD OREGON INLET ROAD
AREA 13 STA. 10+40± TO STA. 34+90±

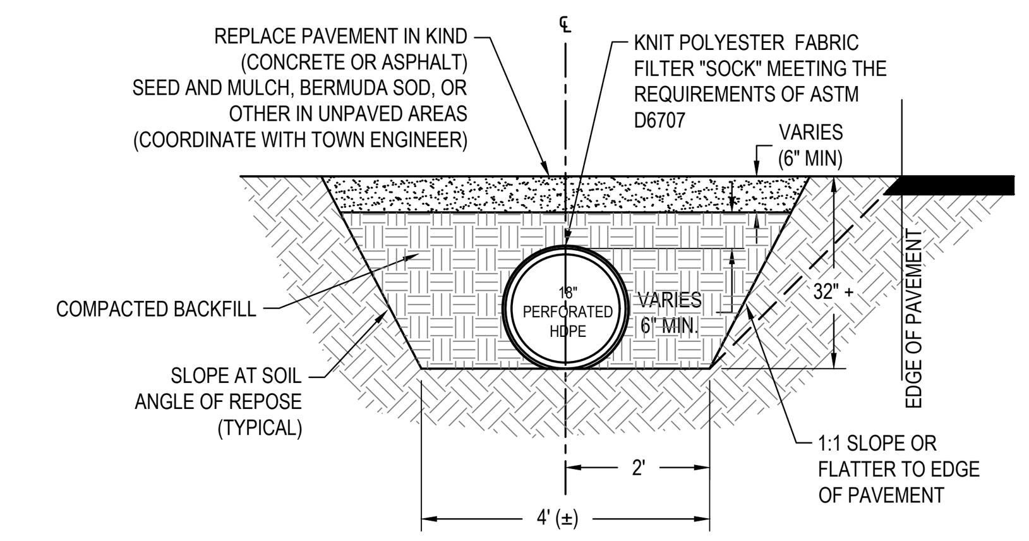


RODS REQUIRED

PIPE SIZE	STATIC THRUST (LBS.)	NUMBER OF RODS REQ'D.
6"	4,328	2
8"	7,694	4
12"	17,312	4
16"	30,779	8
24"	69,252	8

NOTES:
1. STEEL RODS, NUTS AND WASHERS SHALL BE ¾" HOT DIPPED GALVANIZED.
2. CONCRETE SHALL NOT COVER BOLTS, GLANDS OR ENDS OF MECHANICAL JOINT FITTINGS.
3. RESTRAINED JOINT GLANDS SHALL BE USED FOR ALL MECHANICAL JOINTS IN ASSEMBLY.
4. 3' MINIMUM COVER SHALL BE MAINTAINED.
5. ADAPTED FROM CITY OF RALEIGH UTILITIES HANDBOOK

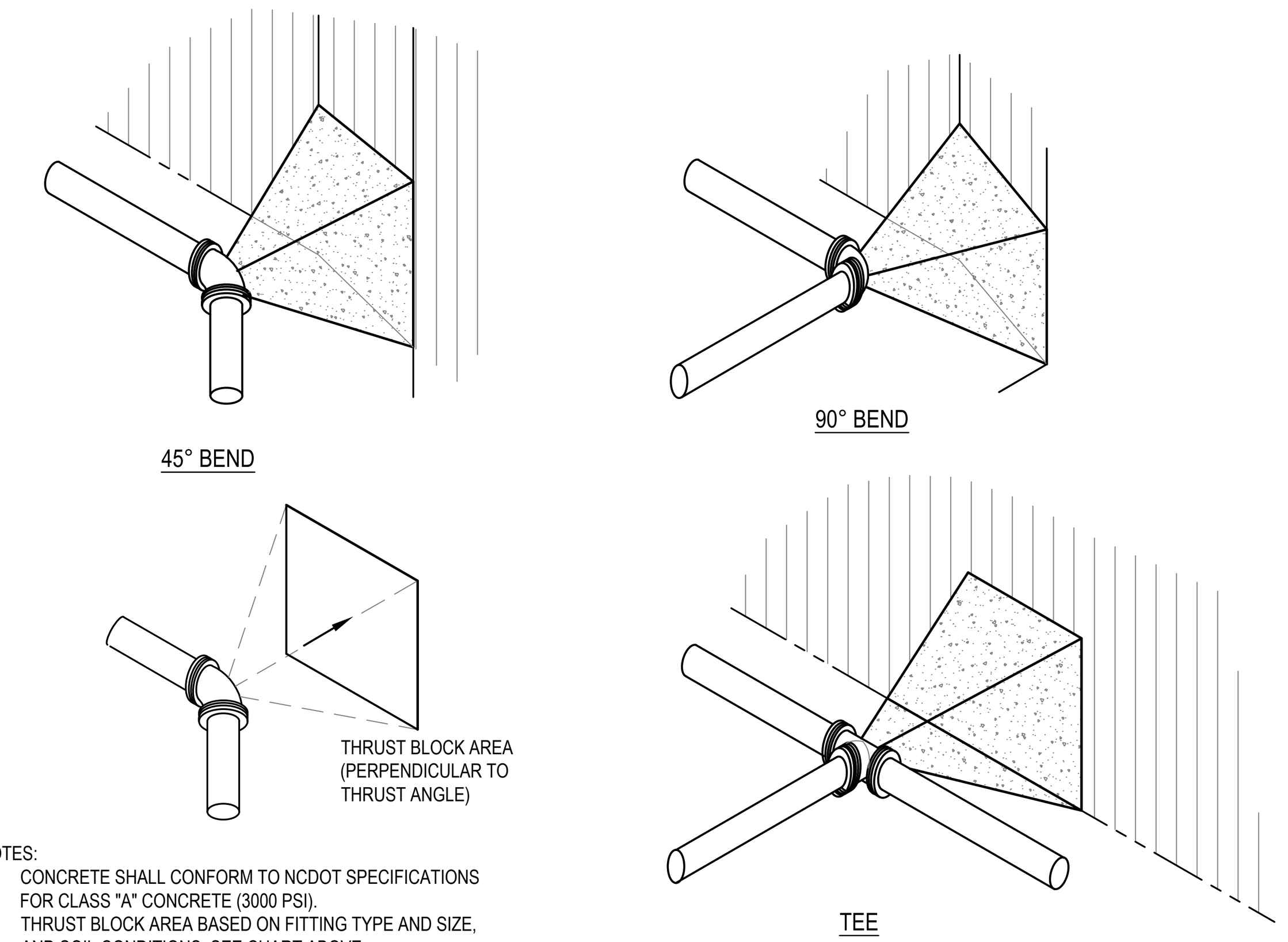
VERTICAL BEND DETAIL
(TO MAINTAIN MINIMUM SEPARATION BETWEEN UTILITIES)
NOT TO SCALE



NOTES:
FIELD CONDITIONS MAY REQUIRE DEVIATION FROM PLAN LOCATION AND TYPICAL SECTION. CONTRACTOR SHALL COORDINATE ALL DEVIATIONS WITH THE TOWN AND THE ENGINEER.

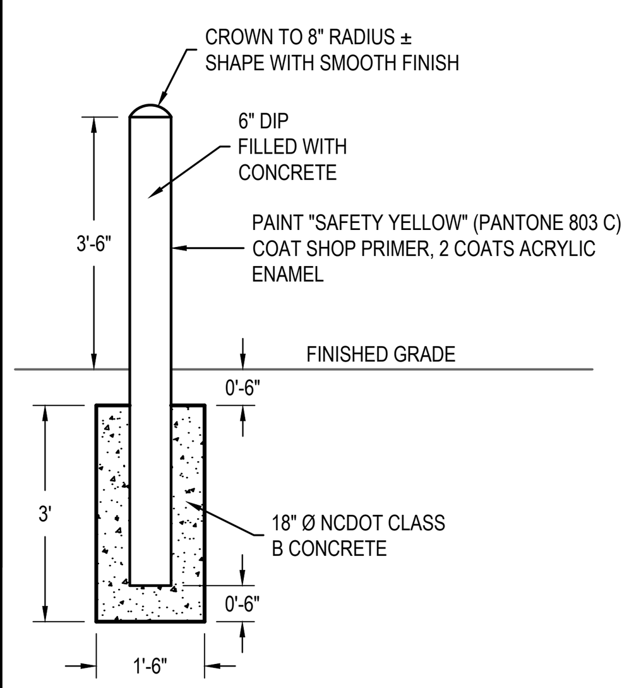
THE MATERIAL EXCAVATED FROM THE TRENCH MAY BE USED FOR BACKFILL, IF SUITABLE (SEE SPECIFICATIONS). ANY UNSUITABLE MATERIAL SHALL BE REMOVED FROM THE SITE AT NO EXTRA CHARGE.

INFILTRATION TRENCH DETAIL
NOT TO SCALE

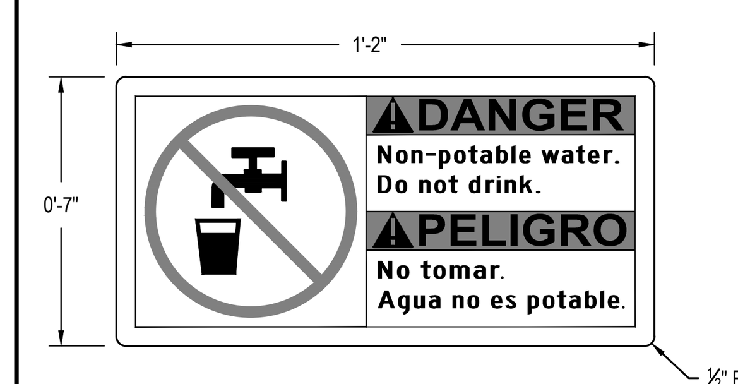


NOTES:
1. CONCRETE SHALL CONFORM TO NCDOT SPECIFICATIONS FOR CLASS "A" CONCRETE (3000 PSI).
2. THRUST BLOCK AREA BASED ON FITTING TYPE AND SIZE, AND SOIL CONDITIONS. SEE CHART ABOVE.
3. CONCRETE SHALL NOT BE PLACED IN CONTACT WITH GLANDS, NUTS OR BOLT OF MECHANICAL JOINT FITTINGS
4. ALL BENDS, TEES AND PLUGS SHALL HAVE CONCRETE THRUST BLOCKING UNLESS OTHERWISE NOTED.

THRUST BLOCK DETAIL
NOT TO SCALE



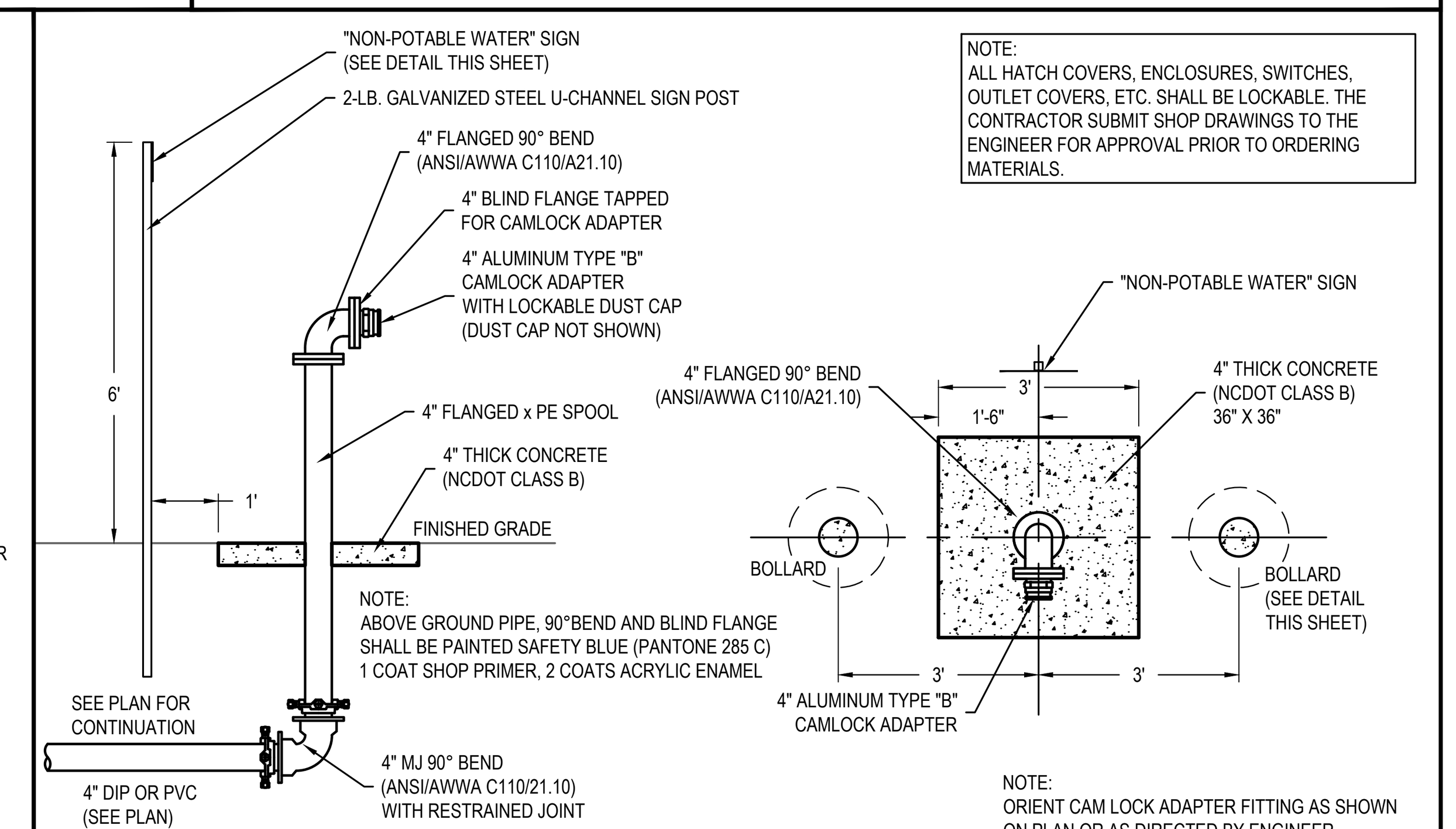
BOLLARD
⅜" = 1'-0"



NOTE:
- SIGN TO BE BILINGUAL (ENGLISH AND SPANISH).
- SIGN TO COMPLY WITH ANSI Z535 FORMAT.
- SIGN SHOWN IS AN EXAMPLE. ENGINEER MAY APPROVE ALTERNATE DESIGNS.
- SIGN BACKING TO BE 1 mm (0.039") (MIN).
- SIGN TO BE MOUNTED ON 2-LB. GALVANIZED U-CHANNEL.
- ATTACH TO POST IN ACCORDANCE WITH NCDOT STD. 904.50.

NON-POTABLE WATER WARNING SIGN
NOT TO SCALE

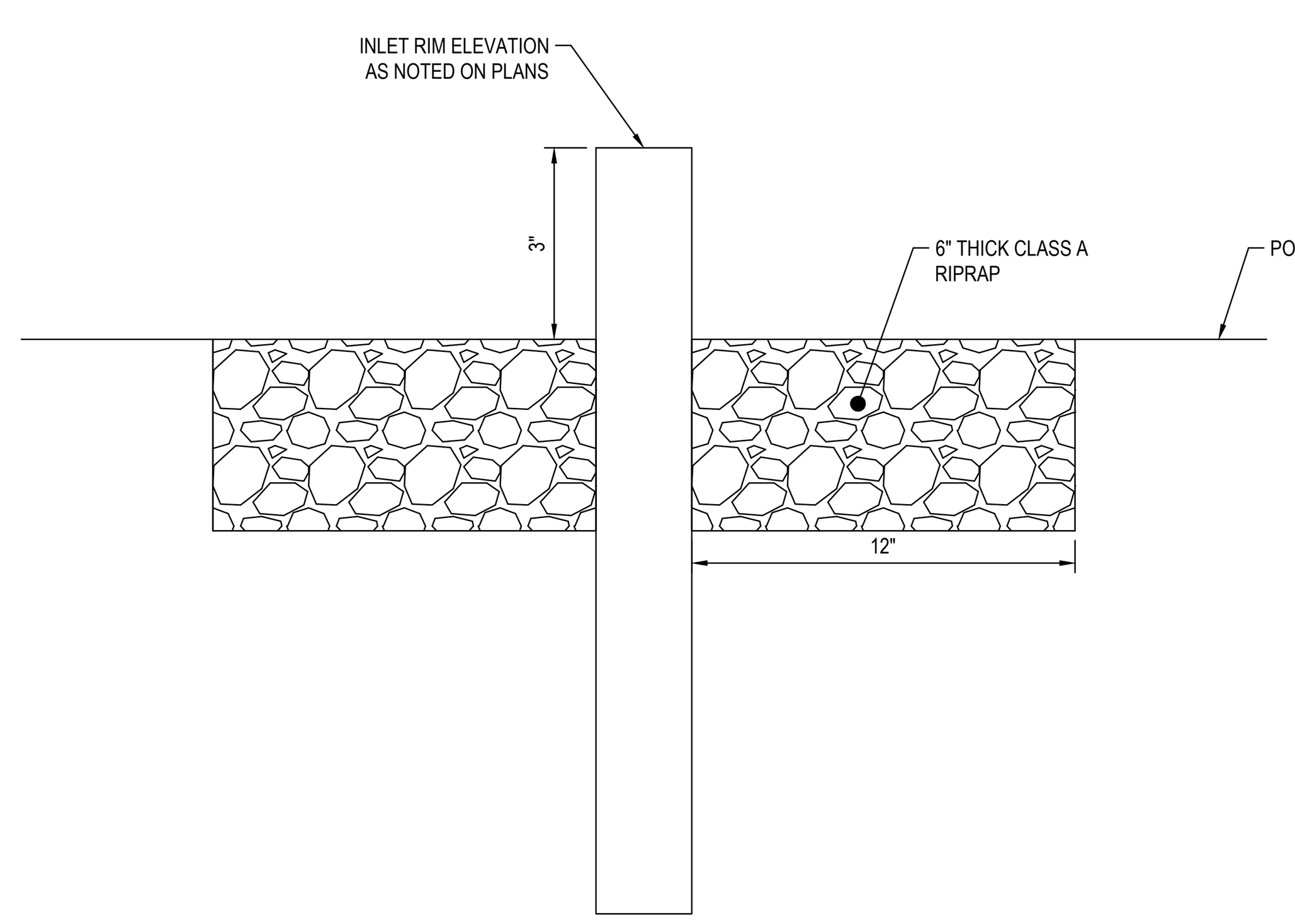
NOTE:
ALL HATCH COVERS, ENCLOSURES, SWITCHES, OUTLET COVERS, ETC. SHALL BE LOCKABLE. THE CONTRACTOR SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO ORDERING MATERIALS.



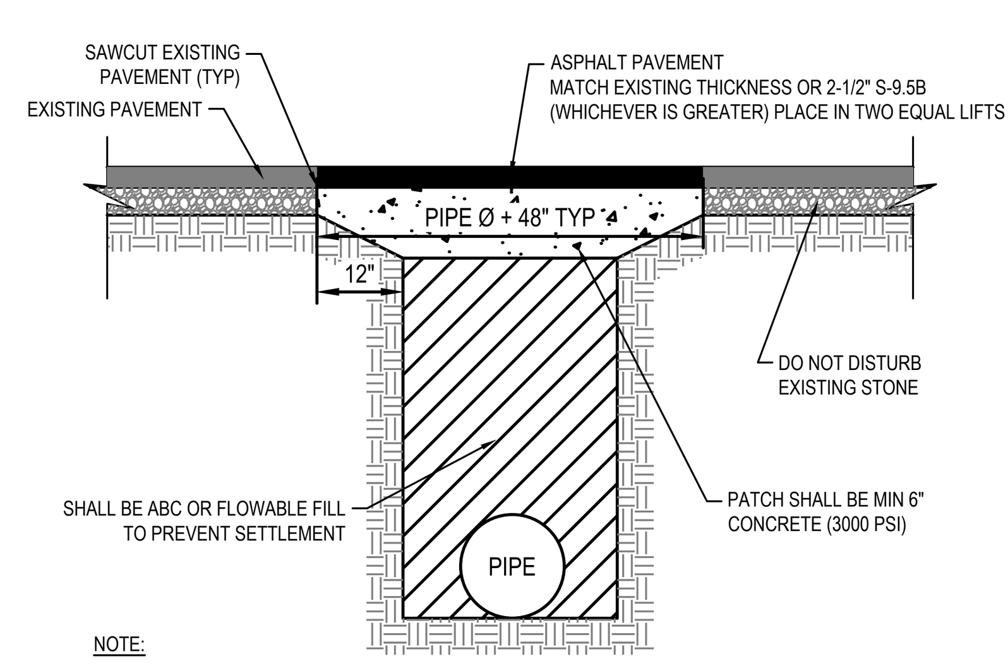
NOTE:
ABOVE GROUND PIPE, 90°BEND AND BLIND FLANGE SHALL BE PAINTED SAFETY BLUE (PANTONE 285 C) 1 COAT SHOP PRIMER, 2 COATS ACRYLIC ENAMEL

NOTE:
ORIENT CAM LOCK ADAPTER FITTING AS SHOWN ON PLAN OR AS DIRECTED BY ENGINEER

CAMLOCK "QUICK CONNECT" FOR EMERGENCY PUMP
⅜" = 1'-0"

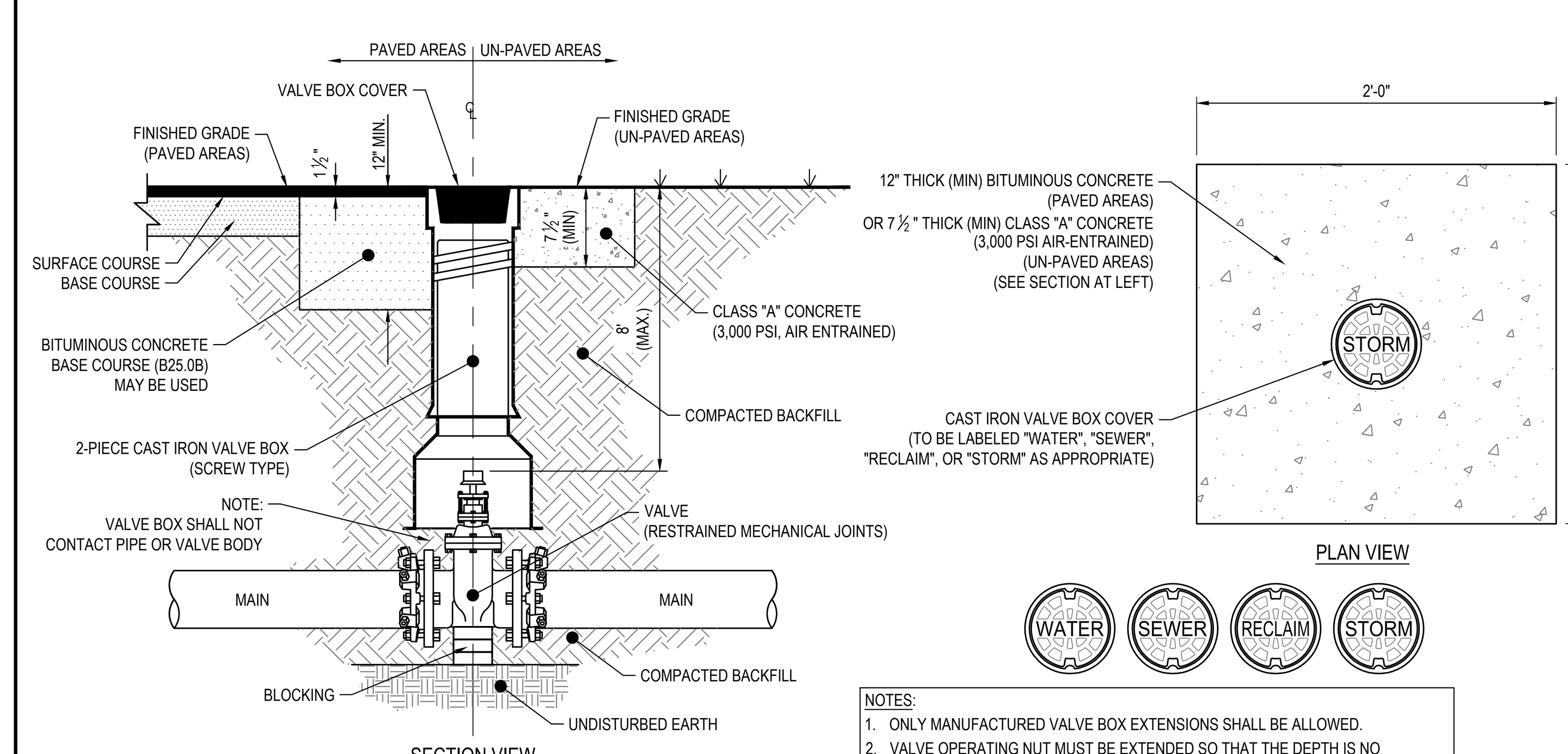


RIPRAP APRON
NOT TO SCALE



NOTE:
ALL PAVEMENT CUTS SHALL BE REPAIRED WITHIN A MAXIMUM OF 2 DAYS FROM THE DATE THE CUT IS MADE. IF CONDITIONS DO NOT PERMIT A PERMANENT REPAIR WITHIN THE GIVEN TIME LIMIT, PERMISSION TO MAKE A TEMPORARY REPAIR MUST BE OBTAINED FROM ENGINEER.

NON-NCDOT ROAD OPEN CUT INSTALLATION
NOT TO SCALE



NOTES:
1. ONLY MANUFACTURED VALVE BOX EXTENSIONS SHALL BE ALLOWED.
2. VALVE OPERATING NUT MUST BE EXTENDED SO THAT THE DEPTH IS NO GREATER THAN 8' (ft.) FROM THE SURFACE USING A MANUFACTURER APPROVED EXTENSION KIT.
3. PRECAST CONCRETE ENCASEMENT IS ALLOWED OUTSIDE OF PAVED AREAS.

VALVE BOX INSTALLATION DETAIL
NOT TO SCALE

FINAL DRAWING
FOR REVIEW PURPOSES ONLY
NOT RELEASED FOR CONSTRUCTION

WithersRavenel
137 S Wilmington Street | Suite 200 | Raleigh, NC 27601
License #: F-1479 | t: 919.469.3340 | www.withersravenel.com
our people • your success

THE TOWN OF NAGS HEAD N.C. 1961
Post Office Box 99
Nags Head, NC 27959

CONSTRUCTION DRAWINGS
SOUTH OREGON INLET ROAD
STORMWATER INFRASTRUCTURE IMPROVEMENTS
AREA 13
Town Of Nags Head | Dare County | North Carolina

NORTH CAROLINA PROFESSIONAL SEAL 047183 ENGINEER DARWICHE EL SABEH
DocuSigned by: 36BB4898FDE44E3...
3/5/2025

INITIAL PLAN DATE: 02/29/2024
REVISIONS:
01/22/2025

WR JOB NUMBER 03210159.03
DRN: BGB DGN: BGB CKD: DNS/APH

DETAILS

5.02