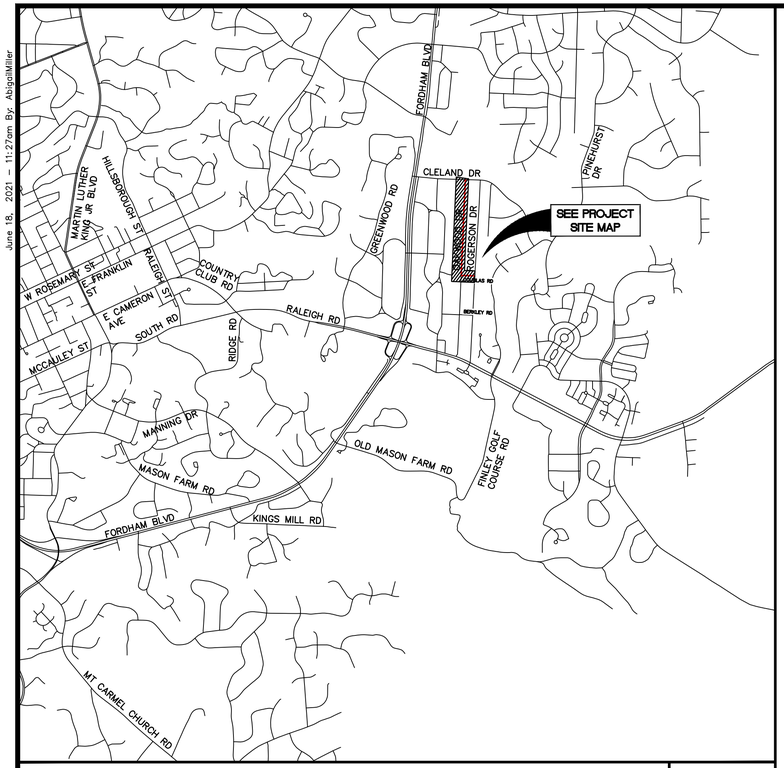
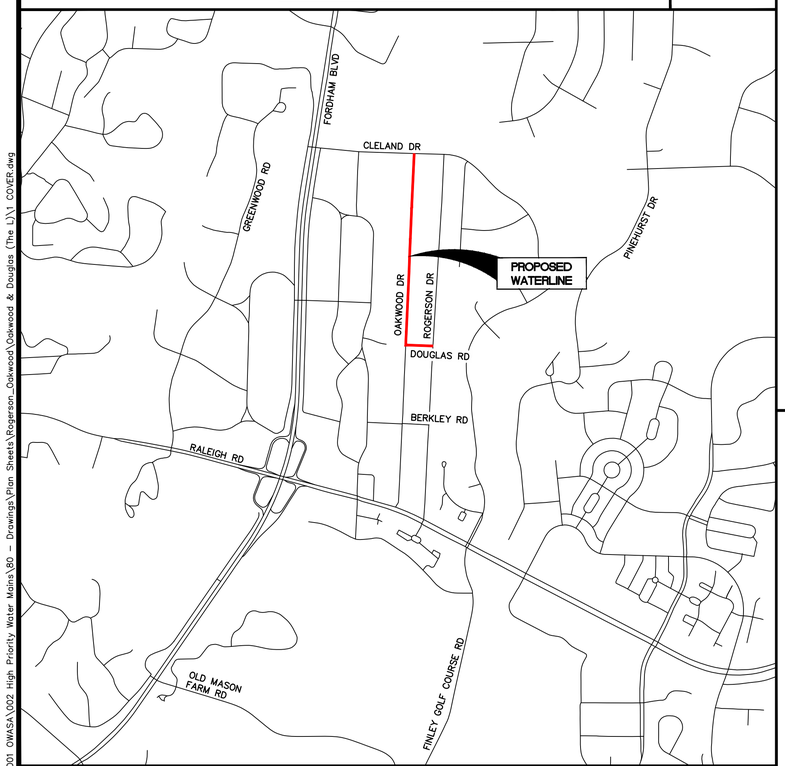
June 18, 2021 - 11:27am By: AbigailMiller



PROJECT LOCATION — NOT TO SCALE



PROJECT SITE — NOT TO SCALE

ORANGE WATER AND SEWER AUTHORITY
CARRBORO, NORTH CAROLINA

OAKWOOD DRIVE & DOUGLAS ROAD WATER MAIN REPLACEMENT

JUNE 2021

NORTH CAROLINA PROFESSIONAL SEAL 029995 ENGINEER STEPHEN D. LEITCH

ORANGE WATER AND SEWER AUTHORITY
400 JONES FERRY ROAD
CARRBORO, NC 27510

PHONE: (919) 537-4229
FAX: (919) 968-4464

OWASA'S CIP#: 275-21

PREPARED IN THE OFFICE OF:

CJS Conveyance, PLLC

320 S. ACADEMY STREET
CARY, NC 27511
NC LICENSE #P-1611 WWW.CJSCONVEYANCE.COM

CJS PROJECT NO. 001-002

JOB NO. 001-002

PROJECT: OAKWOOD DRIVE + DOUGLAS ROAD WATER MAIN REPLACEMENT

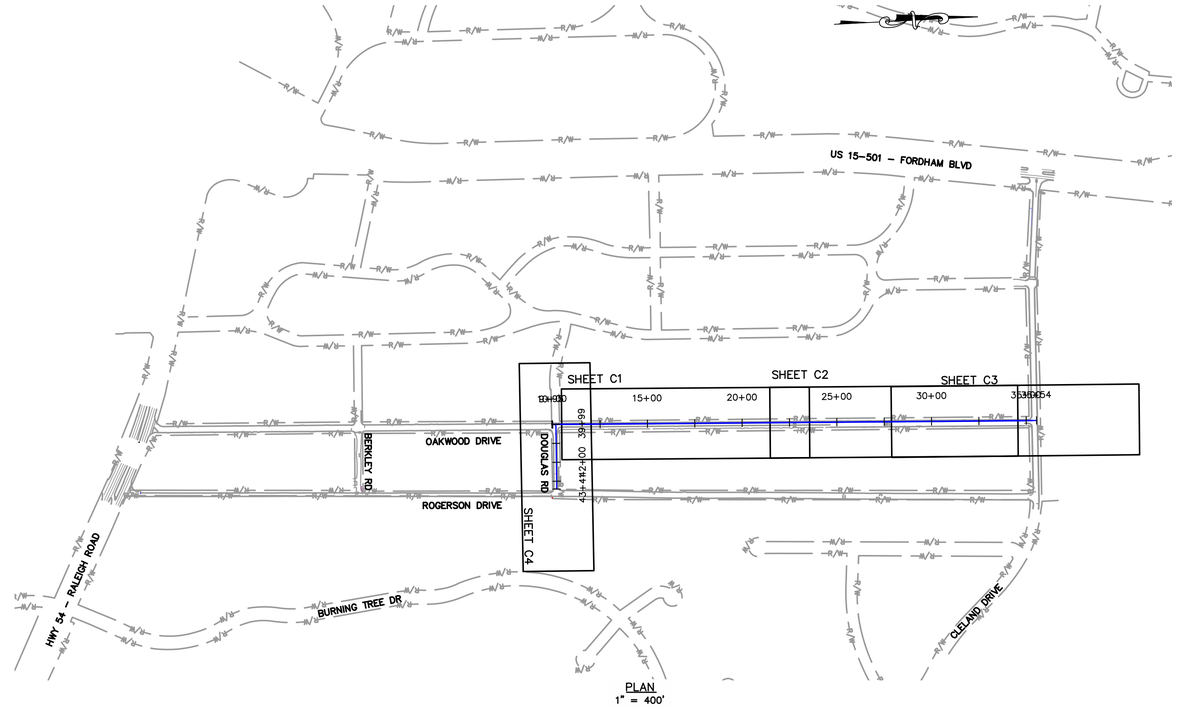
CLIENT: ORANGE WATER AND SEWER AUTHORITY

O:\001 OWASA\002 High Priority Water Mains\80 - Drawings\Plan Sheets\Rogerson_Oakwood\Oakwood & Douglas (The L)\1 COVER.dwg

ABBREVIATIONS

ABC	AGGREGATE BASE COURSE	EFF	EFFICIENCY	NFC	NATIONAL FIRE CODE		
ABN	ABANDONED	EL/ELEV	ELEVATION	NIC	NOT IN CONTRACT	TBM	TEMPORARY BENCHMARK
AC	ASBESTOS CEMENT	ENGR	ENGINEER	NO	NUMBER	TC	TERRA COTTA/TOP OF CURB
ADDL	ADDITIONAL	EOI	END OF INVESTIGATION	NOM	NOMINAL	TCP	TRAFFIC CONTROL PLAN
AG	ABANDONED GAS	EOP	EDGE OF PAVEMENT	NPW	NON-POTABLE WATER	TD	TRENCH DRAIN
ALT	ALTERNATE	EQPT	EQUIPMENT	NTS	NOT TO SCALE	TDH	TOTAL DYNAMIC HEAD
APPROX	APPROXIMATE	ESMT	EASEMENT			TEL	TELEPHONE
ASPH	ASPHALT	EXIST/EX	EXISTING	OHE	OVERHEAD ELECTRIC	TEMP	TEMPORARY
ATTN	ATTENTION	EXT	EXTERIOR			TOB	TOP OF BANK
AVG	AVERAGE			PC	PRESSURE CLASS	TOL	TOLERANCE
		FDC	FIRE DEPARTMENT	PCCP	PRE-STRESSED CONCRETE	TOS	TOP OF SLAB
B	BORING		CONNECTION		CYLINDER PIPE	TP	TELEPHONE POLE
BFE	BASE FLOOD ELEVATION	FES	FLARED END SECTION	PCF	POUNDS PER CUBIC FOOT	TPF	TREE PROTECTION FENCE
BFP	BACKFLOW PREVENTER	FFE	FINISHED FLOOR ELEVATION	PERM	PERMANENT	TRANS	TRANSFORMER
BFV	BUTTERFLY VALVE	FGP	FIBERGLASS PIPE	PG	PAGE	TV	TELEVISION
BLDG	BUILDING	FH	FIRE HYDRANT	PKWY	PARKWAY	TYP	TYPICAL
BLK	BLOCK	FL	FLOW LINE	PL	PROPERTY LINE		
BM	BENCHMARK	FLG	FLANGE	PLF	POUNDS PER LINEAR FOOT	UGND	UNDERGROUND
BO	BLOWOFF	FM	FORCE MAIN	POLY	POLYETHYLENE (PLASTIC)	UNK	UNKNOWN
BOC	BACK OF CURB	FOC	FACE OF CURB	PP	POWER POLE	UTIL	UTILITY
BOT	BOTTOM	FPS	FEET PER SECOND	PPM	PARTS PER MILLION		
BRG	BEARING	FT	FEET	PROP	PROPERTY	VAR	VARIES
		FW	FINISHED WATER	PRV	PRESSURE RELIEF VALVE	VFD	VARIABLE FREQUENCY DRIVE
C&G	CURB AND GUTTER			PS	PUMP STATION	VOL	VOLUME
CAP	CAPACITY	G	NATURAL GAS	PSF	POUNDS PER SQUARE FOOT		
CB	CATCH BASIN	GAL	GALLON	PSI	POUNDS PER SQUARE INCH	W	WEST
CCW	COUNTERCLOCKWISE	GALV	GALVANIZED	PT	POINT OF TANGENT/POINT	W/	WITH
CEM	CEMENT	GOVT	GOVERNMENT	PV	PLUG VALVE	W/O	WITHOUT
CI	CAST IRON	GPD	GALLONS PER DAY	PVC	POLYVINYL CHLORIDE	WL	WATERLINE
CI	CURB INLET	GPH	GALLONS PER HOUR	PVMT	PAVEMENT	WM	WATER METER
CIP	CAST IRON PIPE	GPM	GALLONS PER MINUTE	PW	POTABLE WATER	WP	WATERPROOF
CL	CENTERLINE	GTS	GAS TEST STATION			WPFG	WATERPROOFING
CL	CLASS	GV	GATE VALVE	QA	QUALITY ASSURANCE	WT	WEIGHT
CMP	CORRUGATED METAL PIPE	GW	GUY WIRE	QC	QUALITY CONTROL	WV	WATER VALVE
CO	CLEANOUT			QTY	QUANTITY	WW	WASTE WATER
CONC	CONCRETE	HDPE	HIGH DENSITY POLYETHYLENE				
CONST	CONSTRUCTION	HH	HAND HOLE	RCP	REINFORCED CONCRETE PIPE	YD	YARD
CONT	CONTINUOUS	HORIZ	HORIZONTAL	RCW	RECLAIMED WATER	YI	YARD INLET
COORD	COORDINATE	HP	HORSEPOWER	RD	ROAD/ROOF DRAIN		
CORP	CORPORATION	HYD	HYDRANT	REIN	REINFORCED		
CPP	CORRUGATED PLASTIC PIPE			REQD	REQUIRED		
CTR	CENTER	IN	INCH	REST	RESTRAINED JOINT		
CTRL	CONTROL	INCL	INCLUDED	ROW	RIGHT OF WAY		
CU FT/CF	CUBIC FEET	INV	INVERT	RR	RAILROAD		
CU IN	CUBIC INCH	IP	IRON PIPE	RW	RAW WATER		
CU YD/CY	CUBIC YARD	IPF	IRON PIPE FOUND				
CW	CLOCKWISE	IRF	IRON ROD FOUND	S	SOUTH		
				SAN	SANITARY		
DAT	DATUM	JT	JOINT	SCHED	SCHEDULE		
DATUR	DRAWN ACCORDING TO			SECT	SECTION		
UTILITY		LF	LINEAR FEET (FOOT)	SERV	SERVICE		
	RECORDS	LL	LOWER LEVEL	SF	SQUARE FEET/SILT FENCE		
DB	DEED BOOK	LOD	LIMIT OF DISTURBANCE	SHT	SHEET		
DBL	DOUBLE	LN	LANE	SI	INTERNATIONAL SYSTEM OF		
DC	DIRECT CURRENT	LP	LIGHT POLE		UNITS/SQUARE INCHES		
DEG	DEGREE	LS	LUMP SUM	SIM	SIMILAR		
DEPT	DEPARTMENT	LTS	LAND TREATMENT SITE	SLV	SLEEVE		
DET	DETAIL			SN	STIFFNESS		
DI	DROP INLET	MATL	MATERIAL	SPEC	SPECIFICATION		
DIA	DIAMETER	MAX	MAXIMUM	SQ	SQUARE		
DIM	DIMENSION	MGD	MILLION GALLONS PER DAY	SS	SANITARY SEWER		
DIP	DUCTILE IRON PIPE	MH	MANHOLE	SST	STAINLESS STEEL		
DISC	DISCHARGE	MISC	MISCELLANEOUS	ST	STREET		
DIST	DISTANCE	MIN	MINIMUM	STA	STATION		
DR	DRIVE	MJ	MECHANICAL JOINT	STD	STANDARD		
		MSL	MEAN SEA LEVEL	SUR	SURFACE		
				SURV	SURVEY		
E	EAST	N	NORTH	SW	SIDEWALK		
EA	EACH	NA	NOT APPLICABLE	SYM	SYMBOL		

SHEET INDEX MAP



PLAN
1" = 400'

INDEX TO SHEETS

SHEET NO.	DWG NO.	SHEET TITLE
1	--	COVER
2	G1	INDEX GENERAL NOTES AND ABBREVIATIONS
3	C1	W1 – OAKWOOD DRIVE PLAN AND PROFILE STA. 10+00 TO 21+00
4	C2	W1 – OAKWOOD DRIVE PLAN AND PROFILE STA. 21+00 TO 29+00
5	C3	W1 – OAKWOOD DRIVE PLAN AND PROFILE STA. 29+00 TO 35+54
6	C4	W2 – DOUGLAS ROAD PLAN AND PROFILE STA. 40+00 TO 43+70
7	D1	CONNECTION DETAILS
8	D2	CONNECTION DETAILS
9	D3	MISCELLANEOUS STANDARD DETAILS
10	D4	OWASA STANDARD DETAILS
11	D5	OWASA STANDARD DETAILS
12	D6	OWASA STANDARD DETAILS
13	EC1	EROSION & SEDIMENT CONTROL NOTES
14	EC2	EROSION & SEDIMENT CONTROL NOTES
15	EC3	EROSION & SEDIMENT CONTROL NOTES
16	EC4	EROSION & SEDIMENT CONTROL DETAILS

LEGEND

- 100 FP — 100-YEAR FLOODPLAIN BOUNDARY
- N73°16'07"E 242.16' — BACK OF CURB
- BOUNDARY
- BUFFER
- Z1 — BUFFER ZONE 1 BOUNDARY
- Z2 — Z2 — BUFFER ZONE 2 BOUNDARY
- BUILDINGS & STRUCTURES
- TV — CABLE TV
- X — X — CHAIN-LINK FENCE
- DIRT OR GRAVEL ROAD
- DB — DUCTBANK
- EASEMENT
- EDGE OF PAVEMENT
- EXISTING CENTERLINE
- (PS) — EXISTING PUMP STATION
- FACE OF CURB
- FO — FIBER OPTIC LINE
- FW — FLOODWAY BOUNDARY
- FM — FORCE MAIN
- G — GAS LINE
- 650 — MAJOR CONTOUR
- MINOR CONTOUR
- OHP — OVERHEAD POWER
- PAVEMENT MARKINGS
- (100) — PROJECT PARCEL ID NUMBER
- PROPERTY BOUNDARY
- RCW — RECLAIMED WATER LINE
- RIPRAP
- RETAINING WALL
- R/W — RIGHT OF WAY
- ROAD CENTERLINE
- SS — SANITARY SEWER
- SIDEWALK
- STORM SEWER
- STREAM CENTER
- TOB — STREAM TOP OF BANK
- SWALE OR DITCH
- TREELINE
- UGE — UNDERGROUND ELECTRIC
- T — UNDERGROUND TELEPHONE
- U — UNKNOWN UTILITY
- W — WATER LINE

- WETLAND (BOUNDARY)
- WETLANDS
- WOOD FENCE
- UTILITY POLE
- LIGHT POLE
- ELECTRIC MANHOLE
- ELECTRIC PEDESTAL
- GUY WIRE
- TBM — TEMPORARY BENCHMARK
- BM — BENCHMARK
- RIGHT-OF-WAY MONUMENT
- RBC — CONTROL POINT REBAR AND CAP
- NCGS MONUMENT
- IRS — CONTROL POINT IRON ROD SET
- IRON PIN
- CO — CLEANOUT
- ARV — ARV
- SANITARY SEWER MANHOLE
- TV PEDESTAL
- TELEPHONE PEDESTAL
- COMMUNICATION MANHOLE
- TELEPHONE MANHOLE
- TRAFFIC SIGNAL PEDESTAL
- CABLE TV BOX
- FIBER OPTIC MARKER
- STORM MANHOLE
- CURB INLET
- DROP INLET
- FIRE HYDRANT
- WATER MANHOLE
- WELL
- WATER METER
- WATER VALVE
- MONITORING WELL
- MAILBOX
- SIGN
- GAS VALVE

- LOD — LIMITS OF DISTURBANCE
- SILT FENCE
- /// TPF — SILT FENCE – TREE PROTECTION FENCE
- WB — WATTLE BARRIER
- CHECK DAM
- STONE RELIEF OUTLET/ OUTLET PROTECTION
- TEMPORARY PUMP AROUND
- ROCK PIPE INLET PROTECTION
- SILT FENCE – J HOOK
- CONCRETE WASHOUT PIT
- INLET PROTECTION

PROJECT NOTES

GENERAL/EXISTING UTILITY NOTES

1. EXISTING UTILITIES ARE SHOWN FOR GENERAL INFORMATION ONLY AND MAY NOT BE ALL INCLUSIVE. CONTRACTOR IS TO DIG TEST PITS TO FIELD LOCATE ALL EXISTING UTILITIES THAT THE NEW WATER MAIN AND APPURTENANCES CROSS OR COME IN CLOSE PROXIMITY TO WELL IN ADVANCE OF PIPE LAYING OPERATIONS TO DETERMINE SIZE, ELEVATION AND LOCATION OF ALL UTILITIES. CONTRACTOR IS TO NOTIFY ENGINEER WITHIN 48 HOURS OF ANY CONFLICTS BETWEEN EXISTING UTILITIES AND PROPOSED ROUTE OF WATER MAIN TO ALLOW ADEQUATE TIME FOR ENGINEER AND OWNER TO CONSIDER REALIGNMENT OR CHANGES THAT MAY BE REQUIRED. CONTACT N.C. ONE CALL AT 811 OR 1-800-632-4949 PRIOR TO THE START OF CONSTRUCTION TO HAVE BURIED UTILITIES LOCATED PRIOR TO ANY EXCAVATION OCCURS.
2. WHEN EXISTING UTILITY LINES OR DUCTBANKS ARE EXPOSED DURING CONSTRUCTION THE CONTRACTOR SHALL PROVIDE SUPPORT AS NECESSARY TO PREVENT DAMAGE TO THE EXISTING UTILITY.
3. CONTRACTOR SHALL VERIFY EXACT MATERIALS, LOCATION, ELEVATIONS. DIMENSIONS, AND LAYOUT OF EXISTING PIPING TO BE CONNECTED TO PRIOR TO ORDERING MATERIALS OR COMMENCING CONSTRUCTION.
4. WHERE GUY WIRES ARE TO BE DISTURBED BY THE MAIN INSTALLATION THE CONTRACTOR SHALL CONSULT WITH THE AFFECTED UTILITY TO PROVIDE SUPPORT, RELOCATIONS, OR REPAIRS AS NEEDED FOR WATER MAIN INSTALLATION. CONTRACTOR SHALL BEAR ALL COSTS ASSOCIATED.
5. NOT ALL TREES HAVE BEEN SHOWN. MORE SIGNIFICANT TREES HAVE BEEN SHOWN FOR CONTRACTOR CONVENIENCE.
6. ALL CONCRETE AND ASPHALT DRIVEWAYS ARE TO BE SAW CUT AND REPAIRED.
7. CONTRACTOR IS TO REPLACE DAMAGED STORM DRAINAGE WITH MINIMUM OF 15" RCP.
8. CONTRACTOR TO PROVIDE ADEQUATE SUPPORT FOR POWER POLES. COMPACT TRENCH FIVE (5) FEET EACH SIDE OF POWER POLES TO 95%-98% STANDARD PROCTOR.
9. RESTORE ALL DRIVES, FENCING, PAVEMENT, AND GRASSED AREAS TO THEIR ORIGINAL CONDITION AND MAINTAIN UNTIL FINAL ACCEPTANCE OF THE PROJECT.
10. ALL ITEMS THAT ARE REMOVED AND REPLACED OR DISTURBED DURING CONSTRUCTION ARE TO BE REPLACED WITH EQUAL OR BETTER QUALITY THAN THE ORIGINAL.
11. CONTRACT DRAWINGS ARE REFERENCED TO THE NAD83 HORIZONTAL SURVEY DATUM AND NAVD88 VERTICAL SURVEY DATUM.
12. WHERE MATERIAL IS PLACED ON ROADWAY PROVIDE SCREENINGS TO PREVENT DAMAGE TO PAVEMENT. CONTRACTOR SHALL REPAIR ANY PAVEMENT DAMAGED OUTSIDE THE DESIGNATED TRENCH AREA. ROADS IN WORK AREA TO BE CLEANED AT END OF EACH DAY AT CONTRACTORS OWN EXPENSE.
13. ANY EXISTING AC WATERLINE THAT IS DISTURBED SHALL BE HANDLED AND DISPOSED OF IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL LAWS.
14. NO CURB DISTURBANCE SHALL OCCUR DURING CONSTRUCTION. ANY PAVING IN GUTTER PAN SHALL BE MILLED, SAWCUT, OR OTHERWISE ADDRESSED TO PREVENT DISTURBING CURB.
15. CONTRACTOR SHALL INSPECT ALL INLETS DURING PRECONSTRUCTION VIDEO.
16. CONTRACTOR SHALL USE THERMOPLASTIC PAVEMENT MARKING WHERE ANY LANE MARKING OR CROSSWALK MARKING IS DISTURBED.

WATER MAIN INSTALLATION

17. ALL SHORING WILL BE IN ACCORDANCE WITH OSHA TRENCHING STANDARDS PART 126, SUBPART P, AMENDED TO DATE.
18. PIPELINE TO BE LAID ON CONSTANT GRADE (UP OR DOWN) TO AVOID HIGH SPOTS BETWEEN AIR RELEASE VALVES. MIN 42 INCHES OF COVER UNLESS SHOWN OTHERWISE.
19. DEFLECT PROPOSED PIPE AS NECESSARY. DO NOT EXCEED 75% OF MANUFACTURERS RECOMMENDED DEFLECTION.
20. ALL NEW WATERLINE SHALL BE RESTRAINED JOINT INCLUDING PIPE, VALVES, AND FITTINGS.
21. ALL FIRE HYDRANTS SYMBOLS SHOWN ON THE PLANS ARE NOT SHOWN AT EXACT STATION AND OFFSET. THE CONTRACTOR SHALL CONSULT WITH THE ENGINEER AND OWNER ON FINAL LOCATION OF HYDRANTS, WHICH SHALL BE WITHIN RIGHT OF WAY OR EASEMENT.
22. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH OWASA STANDARD SPECIFICATIONS AND TOWN OF CHAPEL HILL SPECIFICATIONS.
23. CONTRACTOR SHALL PROVIDE A MEANS TO KEEP ALL PIPING ISOLATED FROM EXISTING PIPING UNTIL ALL NEW PIPING HAS BEEN PRESSURE TESTED, AND FLUSHED, PASSED BACTERIOLOGY TESTS AND IS ACCEPTED FOR USE BY OWNER AND ENGINEER.
24. CONTRACTOR SHALL MAINTAIN ACCESS TO AFFECTED PROPERTIES AT ALL TIMES DURING CONSTRUCTION.
25. ABANDON ALL MAINS PER DETAIL 512.05.
26. ALL PROPOSED MAINS SHALL BE TESTED, DISINFECTED, AND APPROVED FOR SERVICE PRIOR TO MAKING FINAL MAIN CONNECTIONS AND SERVICE CHANGEOVERS.
27. LOCATIONS OF EXISTING WATER MAINS AT CONNECTION POINTS ARE APPROXIMATE. CONTRACTOR IS TO PROVIDE APPROPRIATE FITTINGS TO MAKE CONNECTIONS. FITTINGS REQUIRED WILL BE PAID UNDER THE LINE ITEM FOR DUCTILE IRON BENDS AND FITTINGS.
28. ALL SERVICES TO THE LONG SIDE OF THE ROAD SHALL BE BORED. OPEN CUT SHALL ONLY BE USED WHERE INDICATED ON THE PLANS.
29. WEEKLY PROJECT UPDATES SHALL BE PROVIDED VIA EMAIL TO OWASA, TOWN OF CHAPEL HILL, AND AFFECTED RESIDENTS, AND BUSINESSES TO ENSURE ALL STAKEHOLDERS ARE AWARE OF PLANNED CONSTRUCTION ACTIVITIES FOR THE WEEK. A FINAL LIST OF THOSE TO BE INCLUDED ON THE WEEKLY UPDATE SHALL BE COORDINATED WITH OWASA, THE TOWN OF CHAPEL HILL.
30. CONTRACTOR SHALL ONLY REMOVE AC W/L WHERE NEEDED TO INSTALL NEW DIP W/L. ALL OTHER EXISTING AC W/L SHALL BE ABANDONED IN PLACE PER DETAIL 512.05.
31. CONTRACTOR SHALL TEST DIG AT LOCATIONS WHERE WATER MAIN CONNECTIONS ARE TO OCCUR TO VERIFY THE SIZE, MATERIAL, AND LOCATION OF EXISTING WATER MAINS PRIOR TO MAKING CONNECTIONS. PROVIDE ENGINEER AND OWNER WITH THE RESULTS OF THE TEST DIGS. TEST DIGS SHALL BE PERFORMED AT LEAST TWO WEEKS IN ADVANCE OF ACTUAL CONNECTION.
32. TEST HOLE DATA COLLECTED DURING DESIGN IS INCLUDED AS AN APPENDIX IN THE PROJECT MANUAL.
33. PROVIDE TRACER WIRE ON ALL INSTALLED PIPING REGARDLESS OF MATERIAL, SIZE, OR DEPTH.
34. CONTRACTOR SHALL NOT SCHEDULE ANY OUTAGE FOR TIE-INS OR CONNECTIONS UNTIL ALL SAMPLES REQUIRED HAVE PASSED. A 10 DAY NOTIFICATION IS REQUIRED BEFORE ANY OUTAGE.

TOWN OF CHAPEL HILL COORDINATION

35. NO TREES SHALL BE REMOVED WITHOUT PRIOR APPROVAL FROM THE ENGINEER, OWASA, AND THE TOWN OF CHAPEL HILL.
36. CONTRACTOR IS RESPONSIBLE FOR PREPARATION, SUBMISSION, AND OBTAINING ANY PERMITS ASSOCIATED WITH STREET CUTS, PAVEMENT/STREET/SIDEWALK, AND TRAFFIC CONTROL INSPECTION REQUIRED BY THE TOWN OF CHAPEL HILL. IN ADDITION, CONTRACTOR SHALL PAY ALL FEES ASSOCIATED WITH ANY PERMITS OBTAINED. CONTACT TOWN OF CHAPEL HILL PUBLIC WORKS FOR CURRENT STREET CUT PERMITS AND FEES. CONTACT TOWN OF CHAPEL HILL ENGINEERING, ATTN: JERRY NEVILLE AT (919) 969-5096 FOR CLOSURE AND TRAFFIC CONTROL PERMITS AND FEES.
37. CONTACT THE TOWN OF CHAPEL HILL A MINIMUM OF 72 HOURS PRIOR TO THE START OF CONSTRUCTION.
38. CONTACT MR. ROBERT SYKES, TOWN OF CHAPEL HILL STORMWATER DRAINAGE MAINTENANCE SUPERVISOR, PRIOR TO CROSSING ANY TOWN-OWNED CULVERT AND/OR STORMWATER DRAINAGE STRUCTURE (PHONE 919-969-5162). PROPER ADVANCE NOTICE IS REQUIRED AT LEAST 3 DAYS PRIOR TO WORKING IN THE VICINITY OF STORMWATER STRUCTURES AND CONVEYANCES.
39. CONTRACTOR TO CONTACT RAN NORTHAM (TOWN'S COMMUNICATION AND PUBLIC AFFAIRS DEPARTMENT, PHONE 919-969-4878) AS THE CONSTRUCTION SCHEDULE IS FINALIZED AND LANE CLOSURES ARE SCHEDULED SO HE CAN ISSUE PRESS RELEASES FROM THE TOWN, AS NEEDED.
40. ALL WORK SHALL BE IN ACCORDANCE WITH THE TOWN OF CHAPEL HILL NOISE ORDINANCE WHICH LIMITS NOISE CREATING ACTIVITIES TO 7:00 AM TO 7:00 PM MONDAY THROUGH FRIDAY.

EROSION CONTROL AND SEDIMENTATION

41. INSTALL SILT FENCE OR CHECK DAMS DOWN SLOPE OF DISTURBED AREAS IN UNPAVED AREAS OR INLET PROTECTION DEVICES IN PAVED AREAS AS NECESSARY.
42. EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO CONSTRUCTION AND SHALL MEET NCDEQ REQUIREMENTS AND TOWN OF CHAPEL HILL STANDARDS.
43. IN THE EVENT TRENCH DEWATERING IS REQUIRED THE DISCHARGE SHALL ONLY BE THROUGH A SEDIMENT BAG. NO FREE DISCHARGE WILL BE ALLOWED.

TRAFFIC CONTROL

44. PROVIDE TRAFFIC CONTROL, BARRIERS, TRENCH COVER, AND ALL ELSE REQUIRED TO PERFORM THE WORK IN ACCORDANCE WITH NCDOT STANDARDS, TOWN OF CHAPEL HILL REQUIREMENTS, AND MUTCD AND THE TRAFFIC CONTROL PLANS INCLUDED HEREIN.
45. LANE CLOSURES SHALL ONLY OCCUR DURING THE HOURS OF 6:00 AM TO 6:00 PM MONDAY THROUGH FRIDAY AND SHALL BE APPROVED BY THE TOWN OF CHAPEL HILL. WORK ON SATURDAY OR SUNDAY MAY BE ACCEPTABLE ONLY WITH PRIOR APPROVAL.
46. "ROAD CLOSURE" IS CONSIDERED THE SAME AS "LANE CLOSURE" FOR HOURS OF OPERATION UNLESS OTHERWISE SPECIFIED.

No.	REVISIONS	DATE	BY

SEAL: NORTH CAROLINA PROFESSIONAL SEAL 029995 ENGINEER STEPHEN D. LETTOW

CJS Conveyance, PLLC
320 S. ACADEMY ST
CARY, NC 27511
NC LICENSE #P-1611 WWW.CJSCONVEYANCE.COM

ORANGE WATER AND SEWER AUTHORITY
CARRBORO, NORTH CAROLINA

OAKWOOD DRIVE & DOUGLAS ROAD
WATER MAIN REPLACEMENT

INDEX GENERAL NOTES AND ABBREVIATIONS

CJS PROJ. #:	001-002
DATE:	5-4-2021
SCALE:	SCALE
PROJECT ENGINEER:	SDL
DESIGNED BY:	JGB
DRAWN BY:	JGB
CHECKED BY:	JAR

G1

SHEET NUMBER 2 OF 16

Plotted By:Abigail Miller Layout:2 INDEX GENERAL NOTES AND ABBREVIATIONS June 18, 2021 11:27:36am O:\001 OWASA\002 High Priority Water Mains\60 - Drawings\Plan Sheets\Rogerson_Oakwood\Oakwood & Douglas (The L)\2 INDEX GENERAL NOTES AND ABBREVIATIONS.dwg

NOW OR FORMERLY
JOHN WOLF
DB 6144 PG 384
PB 75 PG 118
31 OAKWOOD DR
PIN: 9798373293

NOW OR FORMERLY
SETH KAPLAN
JULIET KAPLAN
DB 5878 PG 438
PB 4 PG 94
35 OAKWOOD DR
PIN: 9798374502

NOW OR FORMERLY
MELVIN MANUEL TRUSTEE
DB 5677 PG 596
PB 4 PG 94
37 OAKWOOD DR
PIN: 9798374625

NOW OR FORMERLY
DUANE EVELEIGH
KATHLEEN EVELEIGH
DB 4170 PG 148
PB 4 PG 94
39 OAKWOOD DR
PIN: 9798374717

NOW OR FORMERLY
MICHAEL SWIMM
JESSICA MCCANN
DB 5874 PG 103
PB 4 PG 94
41 OAKWOOD DR
PIN: 9798374910

NOW OR FORMERLY
DAVID JONES
CAROLINE JONES
DB 4030 PG 323
PB 4 PG 94
43 OAKWOOD DR
PIN: 9798384013

NOW OR FORMERLY
MICHAEL MUNN
DB 6043 PG 555
PB 4 PG 94
45 OAKWOOD DR
PIN: 9798384126

NOW OR FORMERLY
KAREN SWANSON
DB 6608 PG 23
PB 4 PG 94
47 OAKWOOD DR
PIN: 9798384228

NOW OR FORN
49 OAKWOOD
DB 6620 PG
PB 4 PG
49 OAKWOOD
PIN: 979838

NOTES:
1. REMOVE ENTIRE VERTICAL SEGMENT OF HYDRANT ASSEMBLY. PLUG/CAP PIPE AT TERMINATION. CONTRACTOR TO ASSIST WITH LOADING ONTO OWASA TRUCK.

SEE CONNECTION DETAIL 1/D1

NOW OR FORMERLY
JOHN KNIGHT
ELIZABETH KNIGHT
DB 3930 PG 194
PB 75 PG 118
33 OAKWOOD DR
PIN: 9798373399

PROPOSED 6"x6" TEE
STA 10+00

PROPOSED 6"x6" TEE WITH PLUG
STA 30+64

PROPOSED 6" GATE VALVE
STA 30+68

PROPOSED FIRE HYDRANT ASSEMBLY
STA 30+93
SEE DETAIL 514.03-02

PROPOSED 6" GATE VALVE
STA 10+13

EXISTING SANITARY SEWER TO BE LINED

PROPOSED 6" DI WATERLINE

PAVEMENT REMOVAL AND REPLACEMENT LIMITS

PROPOSED WATER SERVICE, TYP.
SEE DETAIL 515.01

ABANDON 6" AC WATERLINE

CURB INLET PROTECTION, TYP.

EXISTING SANITARY SEWER TO BE LINED

PROPOSED FIRE HYDRANT ASSEMBLY
STA 38+37
SEE DETAIL 514.03-02

EXISTING HYDRANT TO BE REMOVED, SEE NOTE 1

EXISTING HYDRANT TO BE REMOVED.
SEE NOTE 1

W2
SEE SHEET 6

MATCH LINE - STA. 21+00
FOR CONTINUATION SEE SHEET 4

OAKWOOD DR

DOUGLAS RD

NOW OR FORMERLY
JOHN DAVIS
PAULA DAVIS
DB 1532 PG 64
32 OAKWOOD DR
PIN: 9798376233

NOW OR FORMERLY
ALICE MANILOFF
PB 4 PG 94
201 DOUGLAS RD
PIN: 9798376338

NOW OR FORMERLY
GARLAND HATTMAN
DB 5813 PG 108
PB 4 PG 64
36 OAKWOOD DR
PIN: 9798376531

NOW OR FORMERLY
ANDRE NOVAK
HOLLIE NOVAK
DB 1670 PG 523
PB 4 PG 94
38 OAKWOOD DR
PIN: 9798376655

NOW OR FORMERLY
GROVER HULL
JOAN HULL
DB 1511 PG 257
PB 4 PG 94
40 OAKWOOD DR
PIN: 9798376757

NOW OR FORMERLY
EMILY BARAGWANATH
DB 6453 PG 554
PB 4 PG 94
42 OAKWOOD DR
PIN: 9798376859

NOW OR FORMERLY
GREGORY MCAVOY
SUSAN BICKFORD
DB 5809 PG 349
PB 4 PG 94
44 OAKWOOD DR
PIN: 9798386052

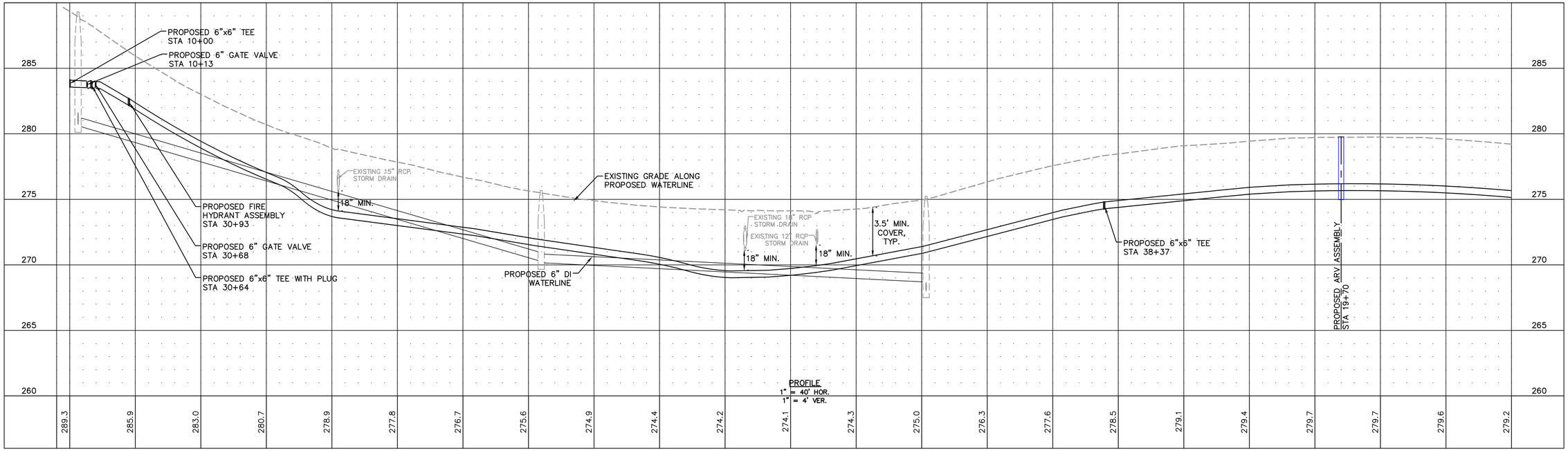
NOW OR FORMERLY
JEFFREY GRIGSTON
ANGELA BORDBAR
DB 5057 PG 154
PB 4 PG 94
46 OAKWOOD DR
PIN: 9798386165

NOW OR FORMERLY
DANIEL SWIMM
KELLY SWIMM
DB 5693 PG 332
PB 4 PG 94
48 OAKWOOD DR
PIN: 9798386267

NOW OR F
BELL FAMILY PR
DB 1950
PB 4 P
50 OAKW
PIN: 979

PLAN
1" = 40'

GRAPHIC SCALE IN FEET
0 20 40 80



PROFILE
1" = 40' HOR.
1" = 4' VER.

No.	REVISIONS	DATE	BY

SEAL: NORTH CAROLINA PROFESSIONAL SEAL 029995 ENGINEER STEPHEN D. LETCH

CJS Conveyance, PLLC
320 S. ACADEMY ST
CARY, NC 27511
NC LICENSE #P-1611 WWW.CJSCONVEYANCE.COM

ORANGE WATER AND SEWER AUTHORITY
CARRBORO, NORTH CAROLINA

OAKWOOD DRIVE & DOUGLAS ROAD
WATER MAIN REPLACEMENT

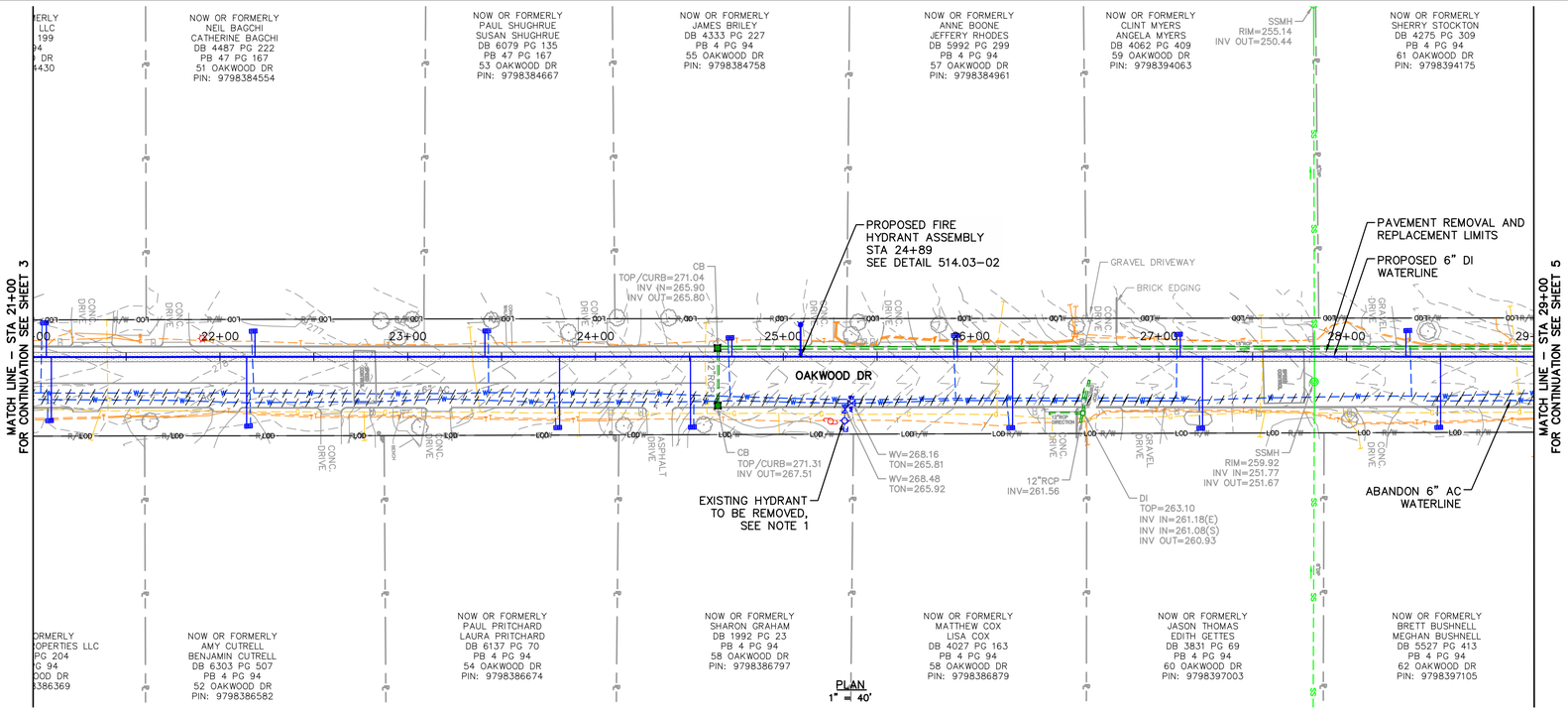
W1 - OAKWOOD DRIVE
PLAN AND PROFILE
STA. 10+00 TO 21+00

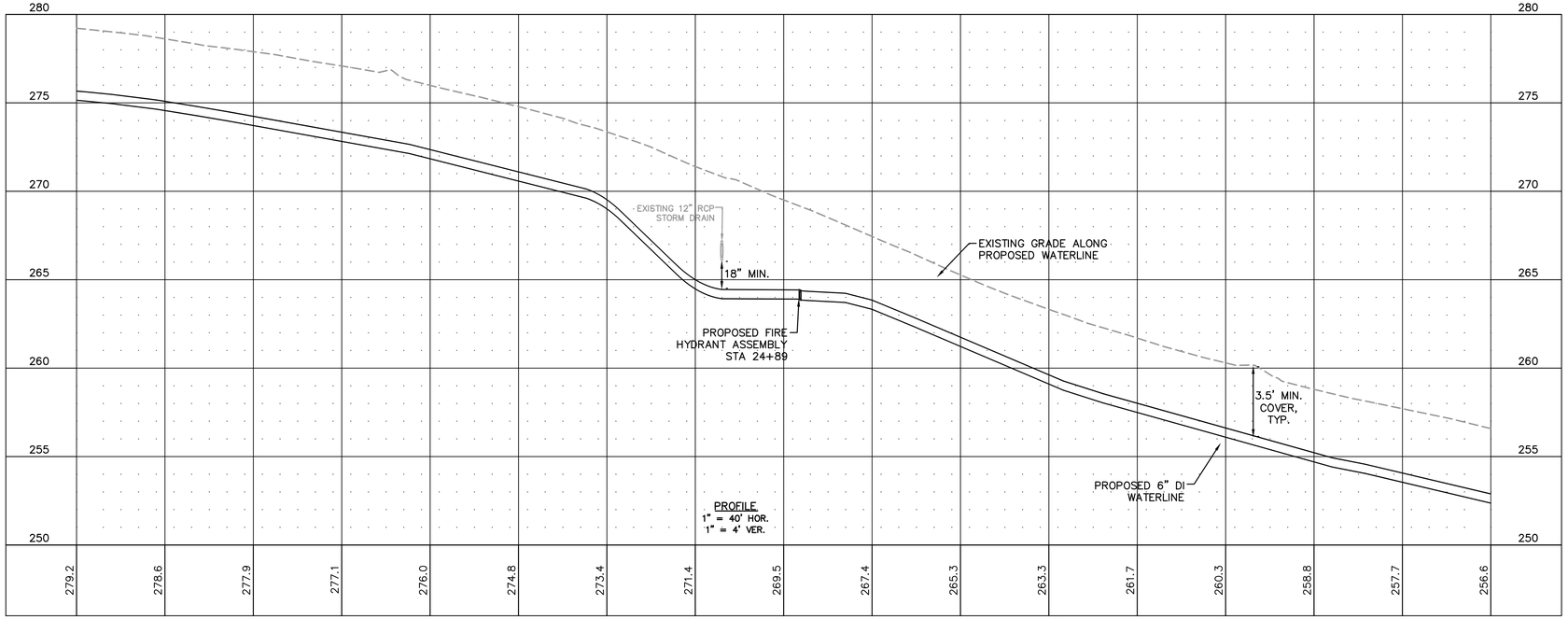
CJS PROJ. #:	001-002
DATE:	5-4-2021
SCALE:	SCALE
PROJECT ENGINEER:	SDL
DESIGNED BY:	JGB
DRAWN BY:	JGB
CHECKED BY:	JAR

C1

SHEET NUMBER
3 OF 16

Plotted By:Abigail Miller Layout:3 W1 - OAKWOOD DRIVE PLAN AND PROFILE June 18, 2021 11:28:04am G:\001 OWASA\002 High Priority Water Mains\80 - Drawings\Plan Sheets\Rogerson_Oakwood\Oakwood & Douglas (The L\3 W1 - OAKWOOD DRIVE PLAN AND PROFILE.dwg





No.	REVISIONS	DATE	BY

SEAL:
NORTH CAROLINA PROFESSIONAL SEAL 029995 ENGINEER STEPHEN D. LEITCH

CJS Conveyance, PLLC
320 S. ACADEMY ST
CARY, NC 27511
NC LICENSE #P-1611 WWW.CJSCONVEYANCE.COM

ORANGE WATER AND SEWER AUTHORITY
CARRBORO, NORTH CAROLINA

OAKWOOD DRIVE & DOUGLAS ROAD
WATER MAIN REPLACEMENT

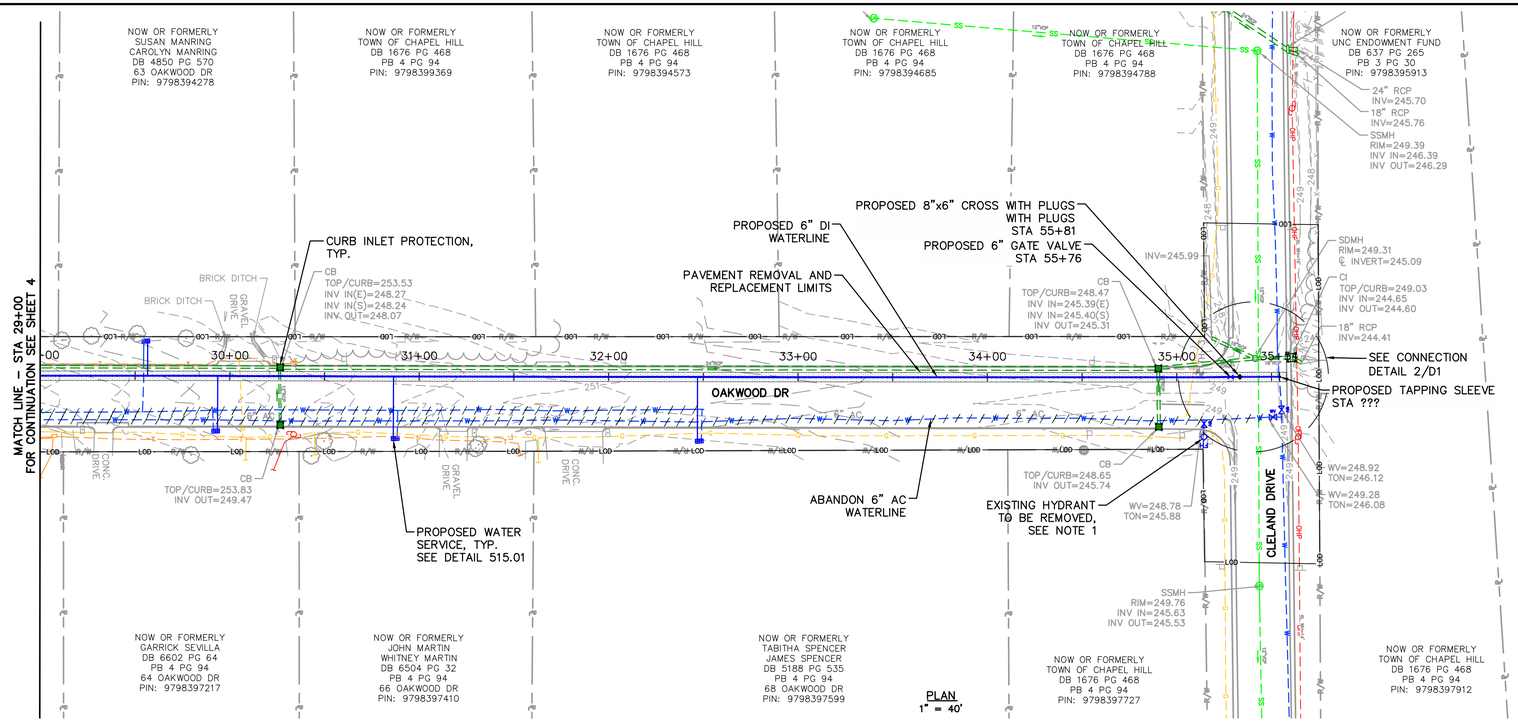
W1 - OAKWOOD DRIVE
PLAN AND PROFILE
STA. 21+00 TO 29+00

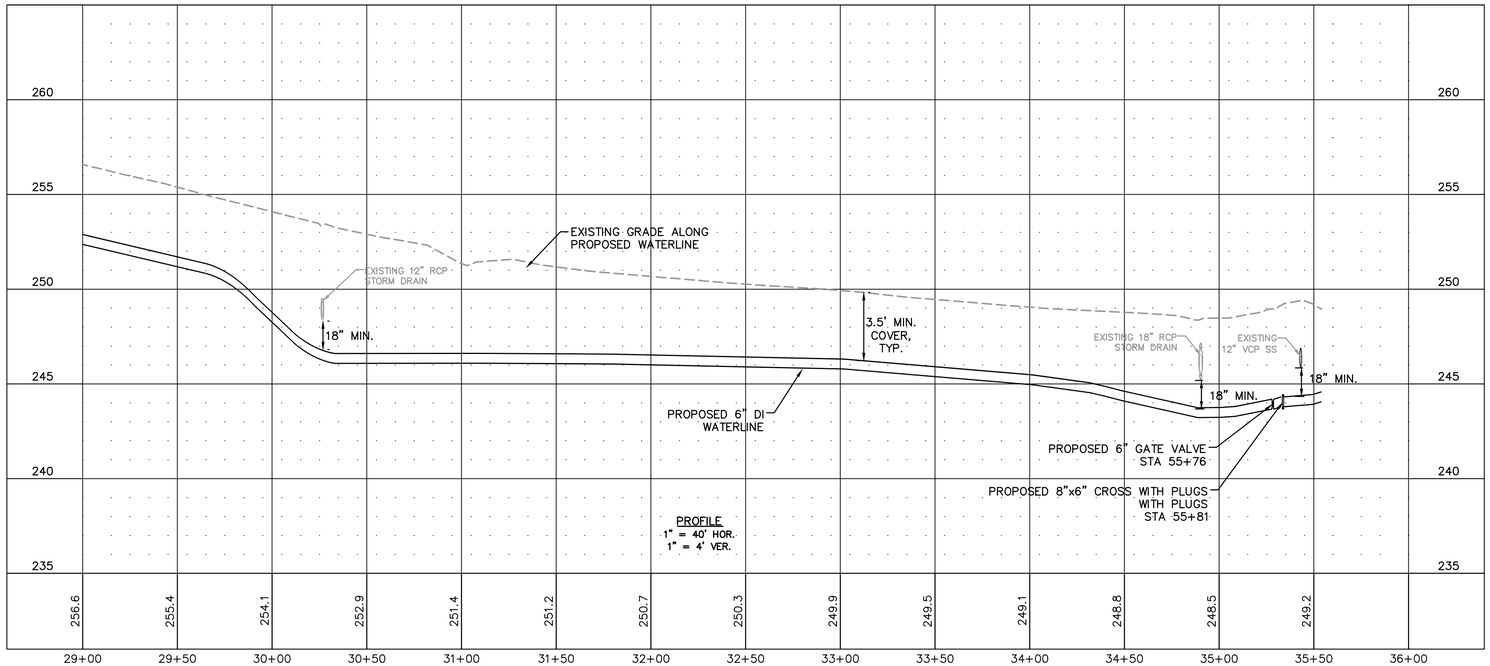
CJS PROJ. #:	001-002
DATE:	5-4-2021
SCALE:	SCALE
PROJECT ENGINEER:	SDL
DESIGNED BY:	JGB
DRAWN BY:	JGB
CHECKED BY:	JAR

C2

SHEET NUMBER
4 OF 16

Plotted By: Abigail Miller Layout: 4 W1 - OAKWOOD DRIVE PLAN AND PROFILE June 18, 2021 11:28:15am O:\001 OWASA\002 High Priority Water Mains\80 - Drawings\Plan Sheets\Rogerson_Oakwood\Oakwood & Douglas (The L)\5 W1 - OAKWOOD DRIVE PLAN AND PROFILE.dwg





No.	REVISIONS	DATE	BY

SEAL:

NORTH CAROLINA PROFESSIONAL SEAL 029995 ENGINEER STEPHEN D. LETCH

CJS Conveyance, PLLC
320 S. ACADEMY ST
CARY, NC 27511
NC LICENSE #P-1611 WWW.CJSCONVEYANCE.COM

ORANGE WATER AND SEWER AUTHORITY
CARRBORO, NORTH CAROLINA

OAKWOOD DRIVE & DOUGLAS ROAD WATER MAIN REPLACEMENT

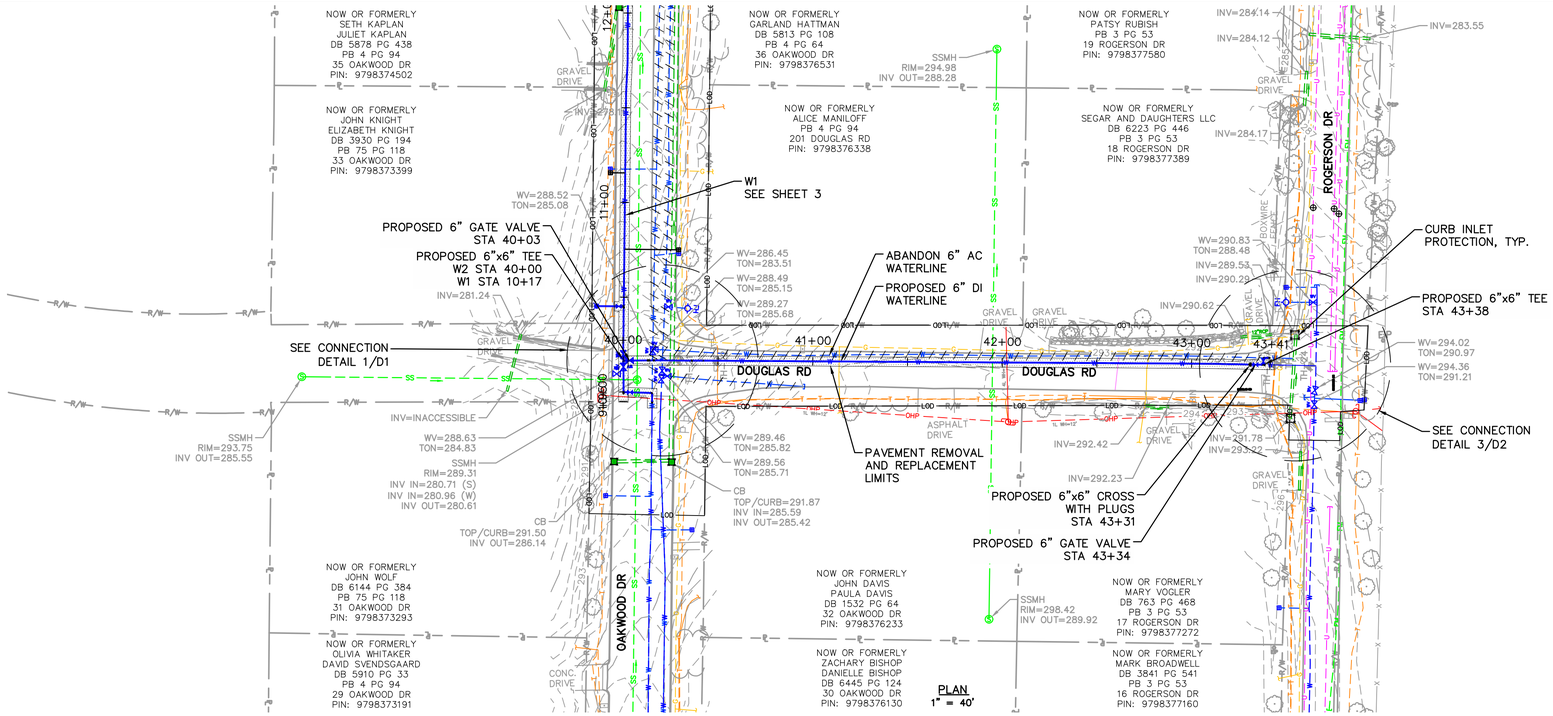
W1 - OAKWOOD DRIVE PLAN AND PROFILE STA. 29+00 TO 35+54

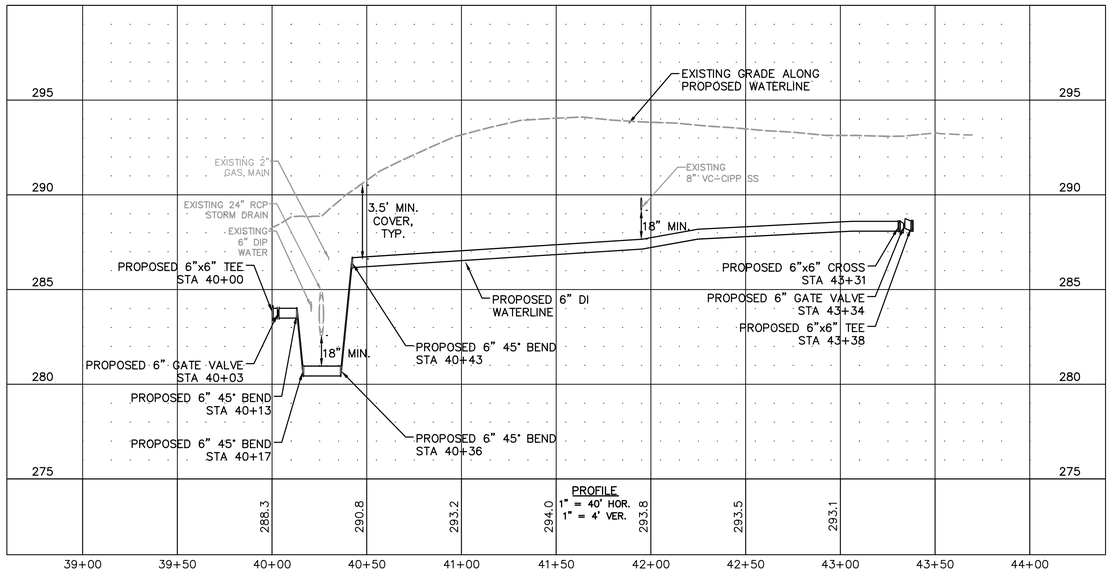
CJS PROJ. #:	001-002
DATE:	5-4-2021
SCALE:	SCALE
PROJECT ENGINEER:	SDL
DESIGNED BY:	JGB
DRAWN BY:	JGB
CHECKED BY:	JAR

C3

SHEET NUMBER 5 OF 16

Plotted By:Abigail Miller Layout:5 W1 – OAKWOOD DRIVE PLAN AND PROFILE June 18, 2021 11:28:27am G:\001 OWASA\002 High Priority Water Mains\80 – Drawings\Plan Sheets\Rogerson_Oakwood\Oakwood & Douglas (The L)\5 W1 – OAKWOOD DRIVE PLAN AND PROFILE.dwg





No.	REVISIONS	DATE	BY

SEAL:

CJS Conveyance, PLLC
320 S. ACADEMY ST
CARY, NC 27511
NC LICENSE #P-1611 WWW.CJSCONVEYANCE.COM

ORANGE WATER AND SEWER AUTHORITY
CARRBORO, NORTH CAROLINA

OAKWOOD DRIVE & DOUGLAS ROAD
WATER MAIN REPLACEMENT

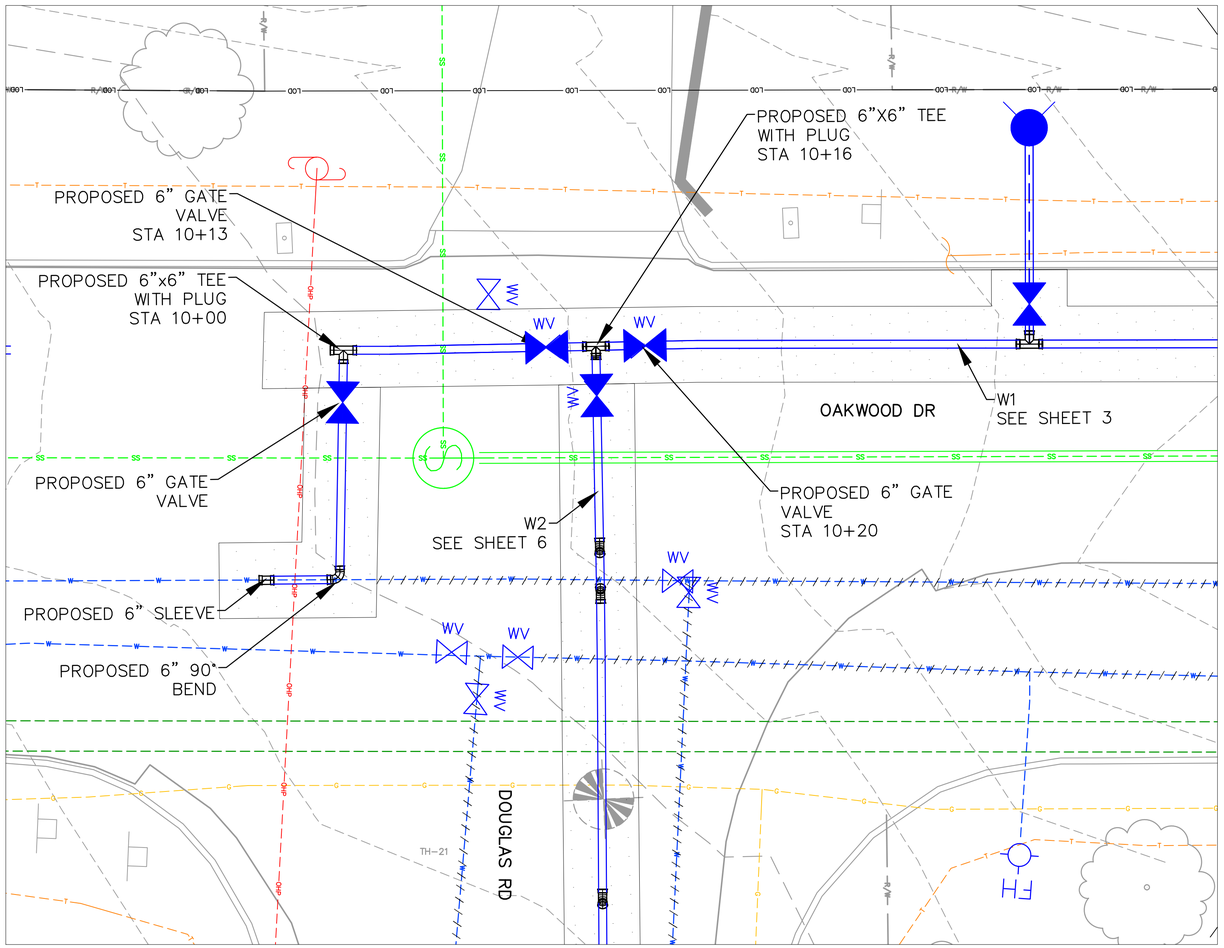
W2 - DOUGLAS ROAD
PLAN AND PROFILE
STA. 40+00 TO 43+70

CJS PROJ. #:	001-002
DATE:	5-4-2021
SCALE:	SCALE
PROJECT ENGINEER:	SDL
DESIGNED BY:	JGB
DRAWN BY:	JGB
CHECKED BY:	JAR

C4

SHEET NUMBER
6 OF 16

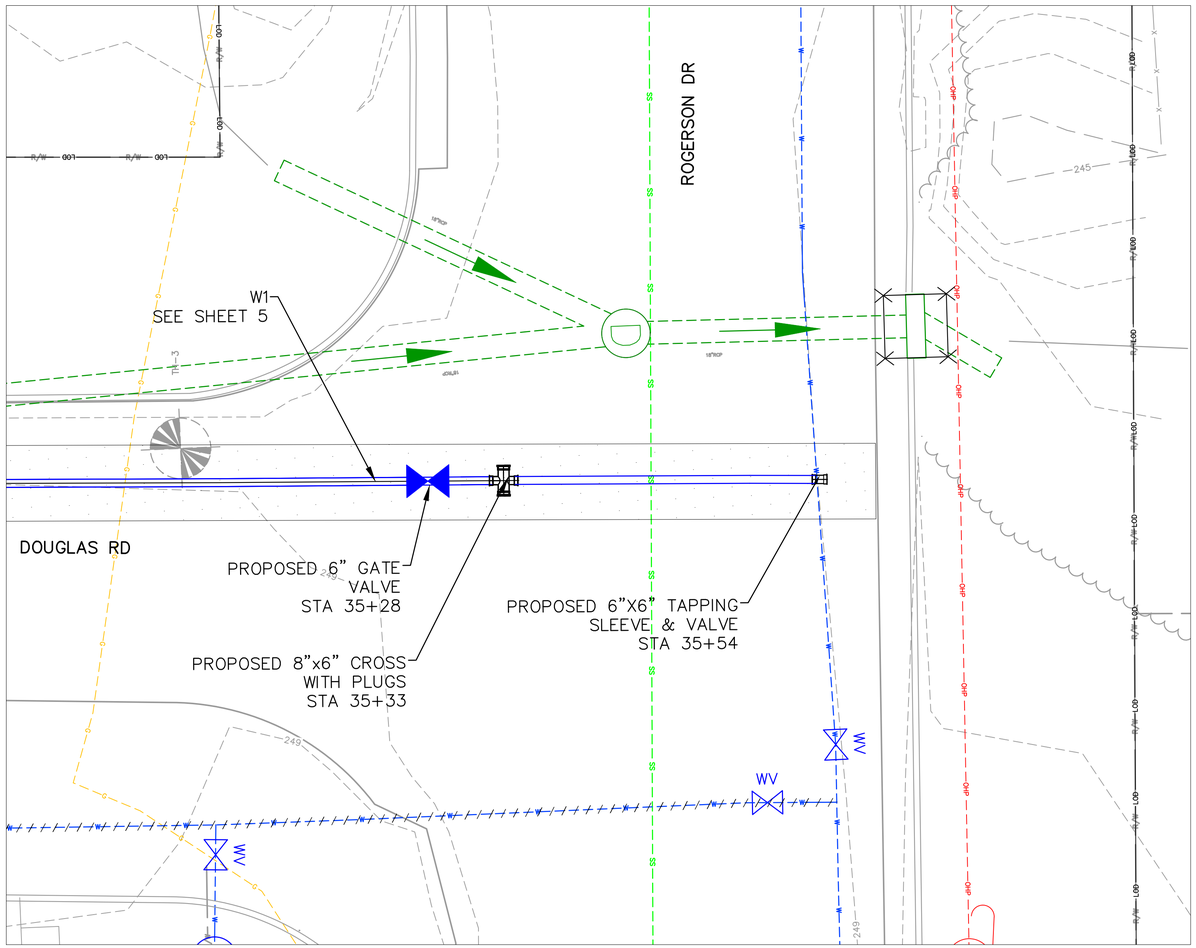
Plotted By:Abigail Miller Layout:6 W2 - DOUGLAS ROAD PLAN AND PROFILE June 18, 2021 11:28:42am O:\001 OWASA\002 High Priority Water Mains\Water Mains\80 - Drawings\Plan Sheets\Rogerson_Oakwood\Oakwood & Douglas (The L)\Plan and Profile C14.dwg



CONNECTION DETAIL 1/D1

PLAN

SCALE: 1" = 5'



CONNECTION DETAIL 2/D2

PLAN

SCALE: 1" = 5'

No.	REVISIONS	DATE	BY

SEAL:

NORTH CAROLINA PROFESSIONAL SEAL 029995 ENGINEER STEPHEN D. LEITCH

CJS Conveyance, PLLC
320 S. ACADEMY ST
CARY, NC 27511
NC LICENSE #P-1611 WWW.CJSCONVEYANCE.COM

ORANGE WATER AND SEWER AUTHORITY
CARRBORO, NORTH CAROLINA

OAKWOOD DRIVE & DOUGLAS ROAD
WATER MAIN REPLACEMENT

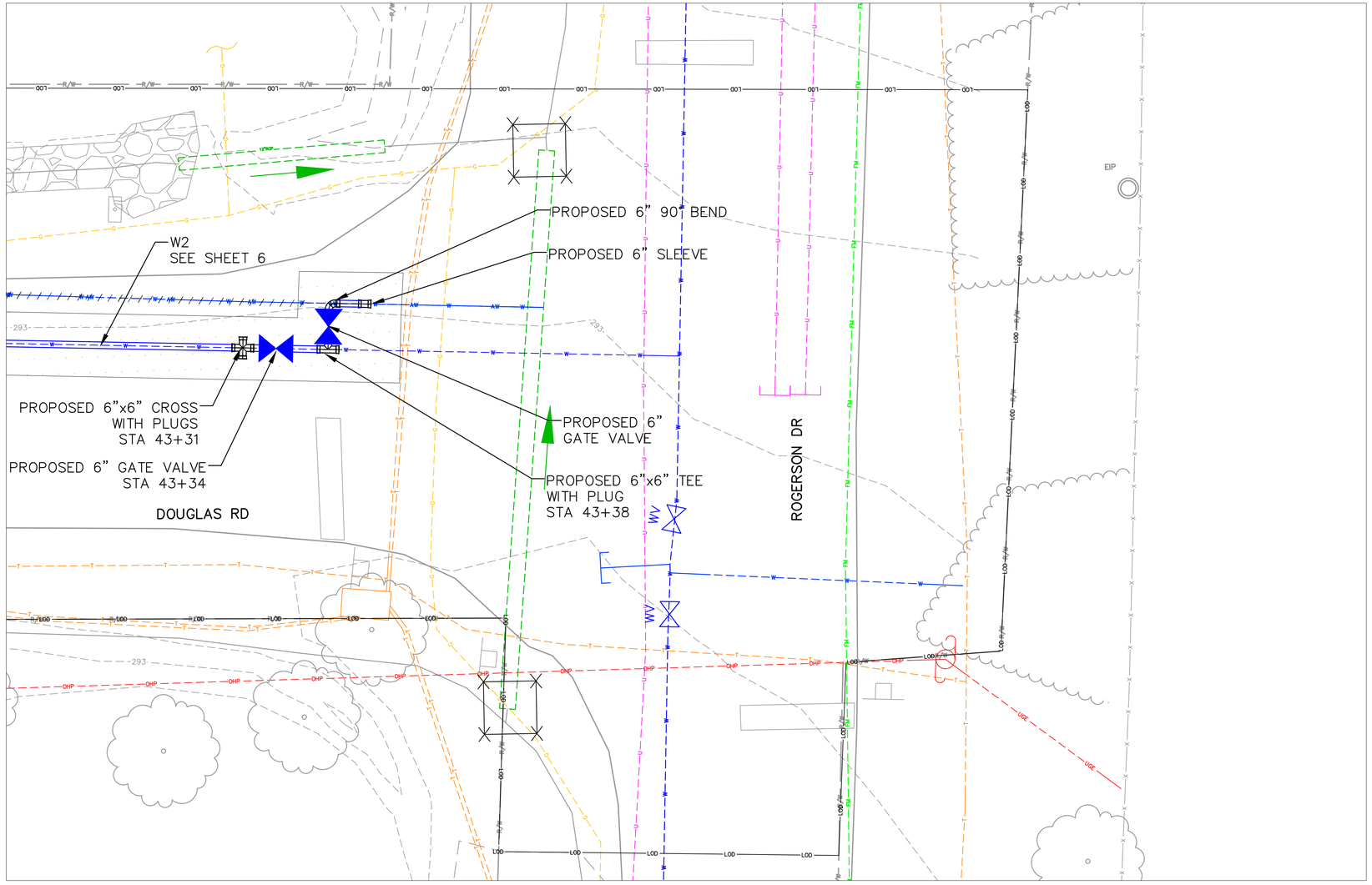
CONNECTION DETAILS

CJS PROJ. #:	001-002
DATE:	5-4-2021
SCALE:	SCALE
PROJECT ENGINEER:	SDL
DESIGNED BY:	JGB
DRAWN BY:	JGB
CHECKED BY:	JAR

D1

SHEET NUMBER 7 OF 16

Plotted By: Abigail Miller Layout: 7 CONNECTION DETAILS June 18, 2021 11:29:16am O:\001 OWASA\002 High Priority Water Mains\80 - Drawings\Plan Sheets\Rogerson_Oakwood\Oakwood & Douglas (The L)\5 WI - OAKWOOD DRIVE PLAN AND PROFILE.dwg



CONNECTION DETAIL 3/D3

PLAN

SCALE: 1" = 5'

No.	REVISIONS	DATE	BY

SEAL:

NORTH CAROLINA PROFESSIONAL SEAL 029995 ENGINEER STEPHEN D. LETCH

CJS Conveyance, PLLC
320 S. ACADEMY ST
CARY, NC 27511
NC LICENSE #P-1611 WWW.CJSCONVEYANCE.COM

ORANGE WATER AND SEWER AUTHORITY
CARRBORO, NORTH CAROLINA

OAKWOOD DRIVE & DOUGLAS ROAD
WATER MAIN REPLACEMENT

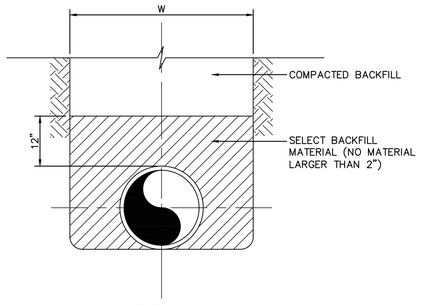
CONNECTION DETAILS

CJS PROJ. #:	001-002
DATE:	5-4-2021
SCALE:	SCALE
PROJECT ENGINEER:	SDL
DESIGNED BY:	JGB
DRAWN BY:	JGB
CHECKED BY:	JAR

D2

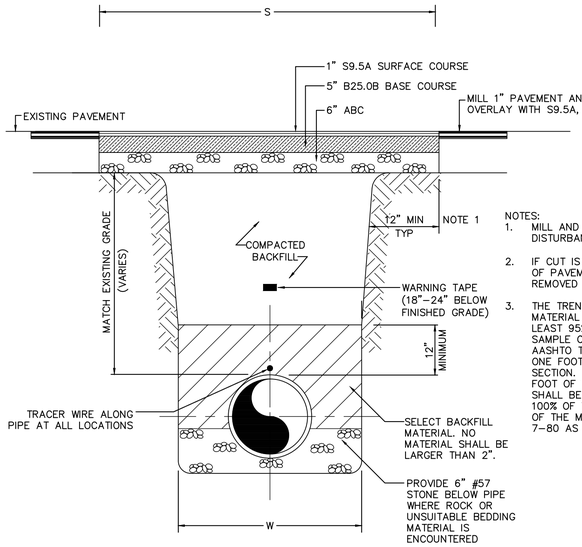
SHEET NUMBER 8 OF 16

Plotted By: Abigail Miller Layout: 8 CONNECTION DETAILS June 18, 2021 11:29:28am O:\001 OWASA\002 High Priority Water Mains\80 - Drawings\Plan Sheets\Rogerson_Oakwood\Oakwood & Douglas (The L)\Plan and Profile C14.dwg



TYPE A
IN EARTH

0222100



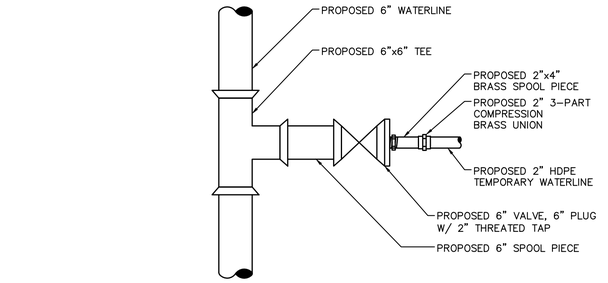
NOTES:
1. MILL AND OVERLAY LIMITS SHALL BE TO LIMITS OF DISTURBANCE SHOWN ON THE PLANS.
2. IF CUT IS LESS THAN (24) INCHES FROM THE EDGE OF PAVEMENT THEN THE ASPHALT MUST BE REMOVED TO EDGE OF PAVEMENT.
3. THE TRENCH IS TO BE BACKFILLED WITH SUITABLE MATERIAL AND COMPACTED TO A DENSITY OF AT LEAST 95% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY NCDOT UP TO WITHIN ONE FOOT OF THE BOTTOM OF THE PAVEMENT SECTION. TRENCH BACKFILL AND ABC WITHIN ONE FOOT OF THE BOTTOM OF THE PAVEMENT SURFACE SHALL BE COMPACTED TO A DENSITY EQUAL TO 100% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO 7-80 AS MODIFIED BY NCDOT.

TYPICAL TRENCH AND PAVEMENT REPAIR (TOWN)

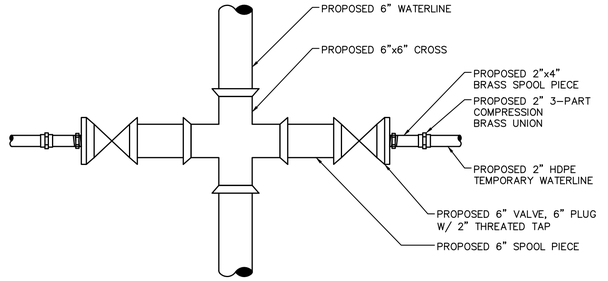
0222107R

TRENCH EXCAVATION LIMITS		
INTERNAL DIAMETER OF PIPE	W WIDTH OF TRENCH MAX	W=MIN
4"-6"	3'-9"	2'-0"
8"-10"	3'-9"	2'-2"
12"	3'-9"	O.D.+2'
14"-16"	4'-2"	O.D.+2'
18"	4'-4"	O.D.+2'
20",21"	4'-8"	O.D.+2'
24"	4'-11"	O.D.+2'
27"	5'-9"	O.D.+2'
30"	6'-7"	O.D.+2'
36"	7'-4"	O.D.+2'
42"	8'-2"	O.D.+2'
48"	8'-9"	O.D.+2'
54"	9'-4"	O.D.+2'
60"	9'-10"	O.D.+2'
72"	11'-0"	O.D.+2'
78"	11'-8"	O.D.+2'
84"	12'-0"	O.D.+2'
90"	12'-6"	O.D.+2'
96"	13'-0"	O.D.+2'
108"	14'-0"	O.D.+2'
DEPTH OF CUT	S MAXIMUM PAVEMENT REPLACEMENT WIDTH	
0-6'	S=W+4'	
>6-8'	S=W+8'	
>8-10'	S=W+12'	
>10-12'	S=W+16'	
>12-14'	S=W+20'	
>14-16'	S=W+24'	
>16-18'	S=W+28'	
>18'	S=W+32'	
W = TRENCH WIDTH AT BOTTOM OF PIPE. TRENCH SIDE SLOPES SHALL BE IN ACCORDANCE WITH OSHA REQUIREMENTS.		

0222110



TEE

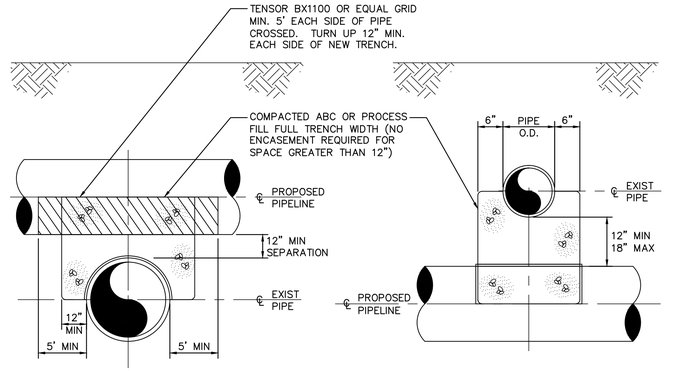


CROSS

NOTE:
PROVIDE FITTINGS AS NEEDED TO BRING HDPE ABOVE GRADE.

TEMPORARY WATERLINE CONNECTION

0222150

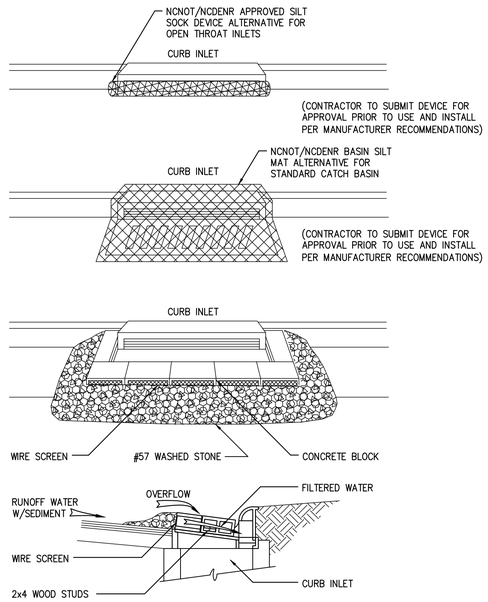


*UTILIZE AT ALL CROSSINGS REGARDLESS OF SEPARATION

PROPOSED PIPELINE OVER EXIST PIPE

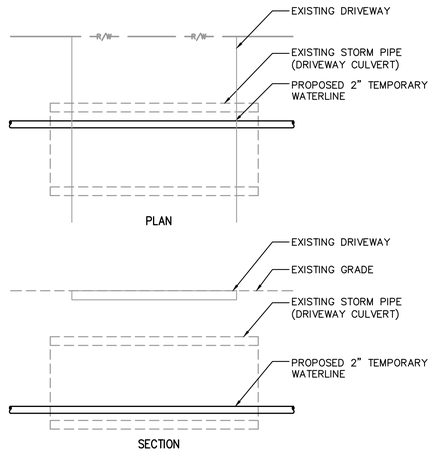
PROPOSED PIPELINE UNDER EXIST PIPE

0222118R



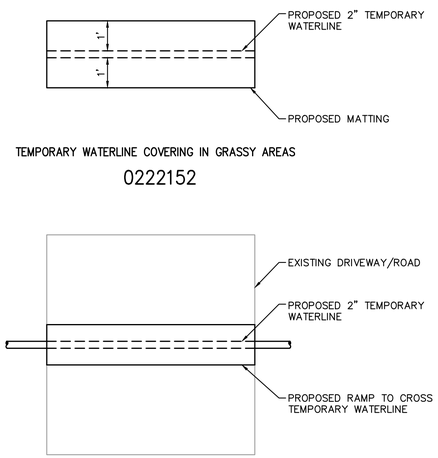
CURB INLET SEDIMENT CONTROL

0227002R



TEMPORARY WATERLINE INSTALL IN CULVERT

0222151



TEMPORARY WATERLINE COVERING IN GRASSY AREAS

0222152

CROSSING TEMPORARY WATERLINE

0222153

No.	REVISIONS	DATE	BY

SEAL:

NORTH CAROLINA PROFESSIONAL SEAL 029995 ENGINEER STEPHEN D. LEITCH

CJS Conveyance, PLLC
320 S. ACADEMY ST
CARY, NC 27511
NC LICENSE #P-1611 WWW.CJSCONVEYANCE.COM

ORANGE WATER AND SEWER AUTHORITY
CARRBORO, NORTH CAROLINA

OAKWOOD DRIVE & DOUGLAS ROAD
WATER MAIN REPLACEMENT

MISCELLANEOUS STANDARD DETAILS

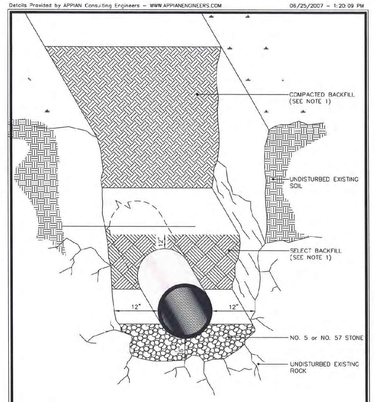
CJS PROJ. #:	001-002
DATE:	5-4-2021
SCALE:	SCALE
PROJECT ENGINEER:	SDL
DESIGNED BY:	JGB
DRAWN BY:	JGB
CHECKED BY:	JAR

D3

SHEET NUMBER 9 OF 16

Plotted By: Abigail Miller Layout: 9 MISCELLANEOUS STANDARD DETAILS June 18, 2021 11:29:38am O:\001 OWASA\002 High Priority Water Mains\80 - Drawings\Plan Sheets\Rogerson_Oakwood\Oakwood & Douglas (The L)\9 MISCELLANEOUS STANDARD DETAILS.dwg

Details Provided by APPIAN Consulting Engineers – WWW.APPIANENGINEERS.COM 05/25/2007 – 1:20:09 PM



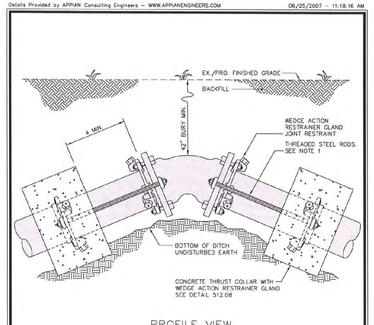
NOTES:
1. See specification section 02275 Trenching, Backfilling, and Compaction of Utilities for backfill and compaction requirements.

OWASA Quality Service Since 1977
400 Jones Ferry Road PO Box 266 Carrboro, NC 27510-0266
ORANGE WATER AND SEWER AUTHORITY Voice (919) 968-4421 FAX (919) 968-4464 www.owasa.org
USE WITH THE OWASA STANDARD SPECIFICATIONS ONLY

DETAIL of ROCK EXCAVATION

SCALE: Not To Scale | DETAIL #: ±511.01 | REVISION DATE: August 15, 2003 | SHEET #: 1 of 1

Details Provided by APPIAN Consulting Engineers – WWW.APPIANENGINEERS.COM 05/25/2007 – 11:18:16 AM



PROFILE VIEW

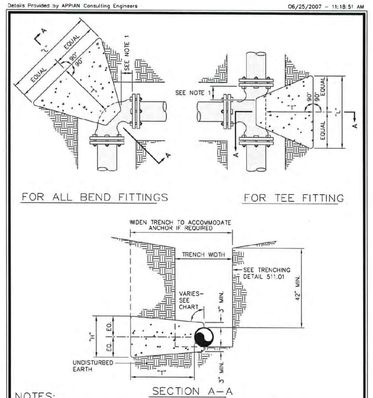
NOTES:
1. If 42" bury depth is not maintained or located in high pressure zone,
   a minimum of (2) 3/4" dia. rods to be used for pipe thru 24" dia. per joint –
   a minimum of (2) 1" dia. rods to be used for pipe 30" & 36" dia. per joint –
   a minimum of (2) 1 1/4" dia. rods to be used for pipe 42" & 48" dia. per joint.
   (See detail 512.09)

OWASA Quality Service Since 1977
400 Jones Ferry Road PO Box 266 Carrboro, NC 27510-0266
ORANGE WATER AND SEWER AUTHORITY Voice (919) 968-4421 FAX (919) 968-4464 www.owasa.org
USE WITH THE OWASA STANDARD SPECIFICATIONS ONLY

STANDARD VERTICAL BEND DETAIL

SCALE: Not To Scale | DETAIL #: ±512.01 | REVISION DATE: August 15, 2003 | SHEET #: 1 of 1

Details Provided by APPIAN Consulting Engineers 06/25/2007 – 11:18:51 AM



SECTION A–A

NOTES:
1. Concrete blocking is to be formed to ensure accessibility to fittings and poured against undisturbed earth.
2. Fittings are to be completely wrapped with plastic, prior to pouring concrete.
3. Concrete to be minimum 3,000 psi. @ 28 days.

OWASA Quality Service Since 1977
400 Jones Ferry Road PO Box 266 Carrboro, NC 27510-0266
ORANGE WATER AND SEWER AUTHORITY Voice (919) 968-4421 FAX (919) 968-4464 www.owasa.org
USE WITH THE OWASA STANDARD SPECIFICATIONS ONLY

BLOCKING DETAIL for HORIZONTAL BENDS AND TEE

SCALE: Not To Scale | DETAIL #: ±512.02 | REVISION DATE: August 15, 2003 | SHEET #: 1 of 1

Details Provided by APPIAN Consulting Engineers – WWW.APPIANENGINEERS.COM 05/25/2007 – 11:20:15 AM

⚠

PIPE SIZE	TYPE FITTING	DIMENSIONS (Ft.) "L"	"H"	"T"	VOLUME, CONCRETE CU. YD.
4" INCHES	11 1/4°	1.00	1.00	1.00	0.04
	22 1/2°	1.00	1.00	1.50	0.06
	45°	1.00	1.00	1.50	0.06
	90°	1.50	1.50	2.50	0.15
	TEE / PLUG	1.50	1.50	2.00	0.12
6" INCHES	11 1/4°	1.00	1.00	2.50	0.09
	22 1/2°	1.00	1.00	2.50	0.09
	45°	1.50	1.50	2.50	0.15
	90°	2.00	2.00	2.50	0.23
	TEE / PLUG	2.00	2.00	2.00	0.19
8" INCHES	11 1/4°	1.50	1.50	2.50	0.15
	22 1/2°	1.50	1.50	2.50	0.15
	45°	2.00	1.50	2.50	0.19
	90°	3.00	2.00	3.00	0.39
	TEE / PLUG	3.00	2.00	2.50	0.32
10" INCHES	11 1/4°	2.00	2.00	2.50	0.23
	22 1/2°	2.00	2.00	2.50	0.23
	45°	2.50	2.00	2.50	0.28
	90°	4.00	2.50	3.00	0.61
	TEE / PLUG	4.00	2.50	2.50	0.51
12" INCHES	11 1/4°	2.00	2.00	3.00	0.28
	22 1/2°	3.50	2.00	3.00	0.44
	45°	4.50	2.75	3.00	0.74
	90°	6.00	3.50	3.50	1.43
	TEE / PLUG	6.00	3.50	3.00	1.22
16" INCHES	11 1/4°	2.50	2.00	3.00	0.33
	22 1/2°	4.00	2.50	3.00	0.61
	45°	5.00	3.50	3.50	1.43
	60°	8.00	4.50	4.00	2.74
	TEE / PLUG	8.00	4.50	3.50	2.40

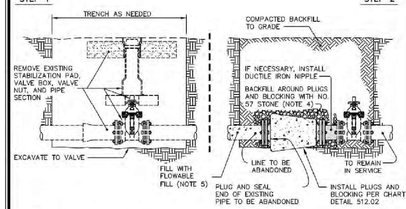
CHART NOTES:
1. If blocking excavation is in lightly compacted fill areas, or in areas where boulders or stumps have been removed, blocking size must be re-sized for the specific location/circumstance by a NC licensed Professional Engineer.
2. Blocking sizes shown in these tables assume the following:
   a. Blocking is constructed in residual soils as shown in detail
   b. Soil bearing pressure = 2000 psf
   c. Velocity of flow = 15 fps
3. This detail not applicable to reducing bends.
4. Neither the weight of the concrete blocking nor friction between concrete blocking and soil was added into blocking sizes computation. Therefore, blocking size is conservative.

OWASA Quality Service Since 1977
400 Jones Ferry Road PO Box 266 Carrboro, NC 27510-0266
ORANGE WATER AND SEWER AUTHORITY Voice (919) 968-4421 FAX (919) 968-4464 www.owasa.org
USE WITH THE OWASA STANDARD SPECIFICATIONS ONLY

BLOCKING DETAIL for HORIZONTAL BENDS AND TEE

SCALE: Not To Scale | DETAIL #: ±512.03 | REVISION DATE: August 15, 2003 | SHEET #: 1 of 1

Details Provided by APPIAN Consulting Engineers – WWW.APPIANENGINEERS.COM 06/26/2012 – 9:17:15 AM



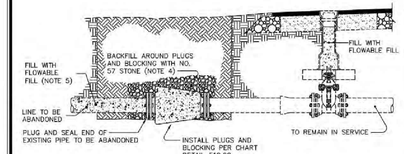
NOTES:
1. Concrete blocking is to be formed to ensure accessibility to fittings.
2. Fittings attached to in service lines are to be completely wrapped with plastic, prior to pouring concrete.
3. Concrete to be minimum 3,000 psi. @ 28 days.
4. Backfill with No. 57 stone compacted in place or with flowable fill concrete (50 psi minimum/ 150 psi maximum).
5. Remove or fill pipes with flowable fill concrete (50 psi minimum/ 150 psi maximum) in accordance with the following criteria:
   a. Pipes larger than 24–inches diameter.
   b. Pipes located within roadway section and meeting one of the following conditions:
      i. pipes that are 12–inches diameter up to and including pipes that are 24–inches diameter and are buried less than 20 feet below finished grade.
      ii. pipes that are 6–inches diameter up to 12–inches diameter that are not cast iron, ductile iron, PVC, or HDPE and are buried less than 12 feet below finished grade.
   c. Pipes located below groundwater table that could become a conduit for water movement.

OWASA Quality Service Since 1977
400 Jones Ferry Road PO Box 266 Carrboro, NC 27510-0266
ORANGE WATER AND SEWER AUTHORITY Voice (919) 968-4421 FAX (919) 968-4464 www.owasa.org
USE WITH THE OWASA STANDARD SPECIFICATIONS ONLY

LINE ABANDONMENT DETAIL FOR UNPAVED AREAS

SCALE: Not To Scale | DETAIL #: ±512.05 | REVISION DATE: June 15, 2012 | SHEET #: 1 of 2

Details Provided by APPIAN Consulting Engineers – WWW.APPIANENGINEERS.COM 05/26/2012 – 9:18:01 AM



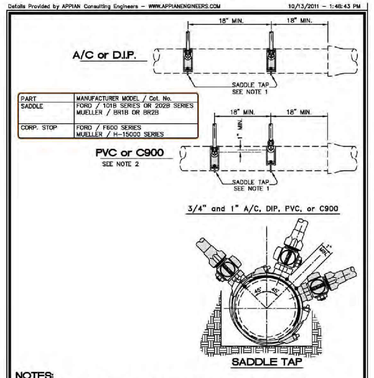
NOTES:
1. Concrete blocking is to be formed to ensure accessibility to fittings.
2. Fittings attached to in service lines are to be completely wrapped with plastic, prior to pouring concrete.
3. Concrete to be minimum 3,000 psi. @ 28 days.
4. Backfill with No. 57 stone compacted in place or with flowable fill concrete (50 psi minimum/ 150 psi maximum).
5. Remove or fill pipes with flowable fill concrete (50 psi minimum/ 150 psi maximum) in accordance with the following criteria:
   a. Pipes larger than 24–inches diameter.
   b. Pipes located within roadway section and meeting one of the following conditions:
      i. pipes that are 12–inches diameter up to and including pipes that are 24–inches diameter and are buried less than 20 feet below finished grade.
      ii. pipes that are 6–inches diameter up to 12–inches diameter that are not cast iron, ductile iron, PVC, or HDPE and are buried less than 12 feet below finished grade.
   c. Pipes located below groundwater table that could become a conduit for water movement.

OWASA Quality Service Since 1977
400 Jones Ferry Road PO Box 266 Carrboro, NC 27510-0266
ORANGE WATER AND SEWER AUTHORITY Voice (919) 968-4421 FAX (919) 968-4464 www.owasa.org
USE WITH THE OWASA STANDARD SPECIFICATIONS ONLY

LINE ABANDONMENT DETAIL FOR PAVED AREAS

SCALE: Not To Scale | DETAIL #: ±512.05 | REVISION DATE: June 15, 2012 | SHEET #: 2 of 2

Details Provided by APPIAN Consulting Engineers – WWW.APPIANENGINEERS.COM 10/13/2011 – 1:48:43 PM



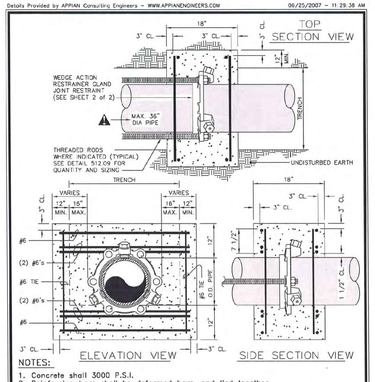
NOTES:
1. All bronze saddle (Single or double strap for 3/4" and 1")
2. If 2 taps are made on each side of the main there shall be a minimum of 18" horizontal separation. Multiple taps on the same side shall have a minimum 18" horizontal separation and staggered a minimum of 1" vertically to prevent damage to the main.

OWASA Quality Service Since 1977
400 Jones Ferry Road PO Box 266 Carrboro, NC 27510-0266
ORANGE WATER AND SEWER AUTHORITY Voice (919) 968-4421 FAX (919) 968-4464 www.owasa.org
USE WITH THE OWASA STANDARD SPECIFICATIONS ONLY

STANDARD 3/4" and 1" WATER TAPPING DETAIL

SCALE: Not To Scale | DETAIL #: ±512.04 | REVISION DATE: October, 2011 | SHEET #: 1 of 1

Details Provided by APPIAN Consulting Engineers – WWW.APPIANENGINEERS.COM 05/25/2007 – 11:29:38 AM



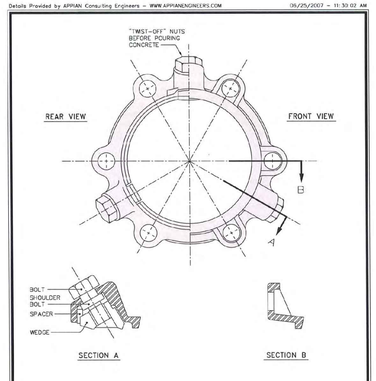
NOTES:
1. Concrete shall 3000 P.S.I.
2. Reinforcing bars shall be deformed bars, and tied together.
3. Trench bottom width in vicinity of thrust block(s) installation shall be the minimum width for placement of pipe (Max trench width = pipe O.D.+2 Ft.)
4. Backfill and compact in 6" layers.
5. Place thrust collar on one full joint of pipe.
6. Last joint of pipe with thrust collar to be mechanical joint pipe.
7. Place wedge action restrainer gland joint restraint 4 feet from plug end of pipe.

OWASA Quality Service Since 1977
400 Jones Ferry Road PO Box 266 Carrboro, NC 27510-0266
ORANGE WATER AND SEWER AUTHORITY Voice (919) 968-4421 FAX (919) 968-4464 www.owasa.org
USE WITH THE OWASA STANDARD SPECIFICATIONS ONLY

THRUST COLLAR & BLOCKING with WEDGE ACTION RESTRAINER GLAND

SCALE: Not To Scale | DETAIL #: ±512.06 | REVISION DATE: August 15, 2003 | SHEET #: 1 of 2

Details Provided by APPIAN Consulting Engineers – WWW.APPIANENGINEERS.COM 05/25/2007 – 11:30:02 AM



⚠ A MEGA-A-LUG SERIES 1100 or FORD WEDGE ACTION RESTRAINER GLAND UFR SERIES 1400 MECHANICAL JOINT RESTRAINT SHALL BE PLACED ON DIP, CONCRETE & REINFORCEMENT STEEL SHALL ALSO BE AS SHOWN ON SHEET 1 of 2.

OWASA Quality Service Since 1977
400 Jones Ferry Road PO Box 266 Carrboro, NC 27510-0266
ORANGE WATER AND SEWER AUTHORITY Voice (919) 968-4421 FAX (919) 968-4464 www.owasa.org
USE WITH THE OWASA STANDARD SPECIFICATIONS ONLY

THRUST COLLAR & BLOCKING with WEDGE ACTION RESTRAINER GLAND

SCALE: Not To Scale | DETAIL #: ±512.06 | REVISION DATE: August 15, 2003 | SHEET #: 2 of 2

Details Provided by APPIAN Consulting Engineers – WWW.APPIANENGINEERS.COM 06/25/2007 – 11:30:25 AM

TIE ROD ANCHORS DATUM		
PIPE SIZE (INCHES)	ROD DIAMETER	NUMBER OF A307 RODS REQUIRED
TEST PRESSURE = 150 PSI		
6	3/4"	2
8	3/4"	2
10	3/4"	2
12	3/4"	4
16	3/4"	6
20	3/4"	8
24	3/4"	8
30	1"	10
TEST PRESSURE = 200 PSI		
6	3/4"	2
8	3/4"	2
10	3/4"	4
12	3/4"	6
16	3/4"	8
20	3/4"	12
24	3/4"	10
30	1"	14
TEST PRESSURE = 250 PSI		
6	3/4"	4
8	3/4"	4
10	3/4"	4
12	3/4"	6
16	3/4"	12
20	3/4"	16
24	3/4"	16
30	1"	20

ASTM A307 CADMIUM COATED TIE RODS

OWASA Quality Service Since 1977
400 Jones Ferry Road PO Box 266 Carrboro, NC 27510-0266
ORANGE WATER AND SEWER AUTHORITY Voice (919) 968-4421 FAX (919) 968-4464 www.owasa.org
USE WITH THE OWASA STANDARD SPECIFICATIONS ONLY

TIE ROD ANCHORS DATUM CHART

SCALE: Not To Scale | DETAIL #: ±512.09 | REVISION DATE: August 15, 2003 | SHEET #: 1 of 1

No.	REVISIONS	DATE	BY

SEAL: NORTH CAROLINA PROFESSIONAL SEAL 029995 ENGINEER STEPHEN D. LETTY

CJS Conveyance, PLLC
320 S. ACADEMY ST
CARY, NC 27511
NC LICENSE #P-1611 WWW.CJSCONVEYANCE.COM

ORANGE WATER AND SEWER AUTHORITY
CARRBORO, NORTH CAROLINA

OAKWOOD DRIVE & DOUGLAS ROAD
WATER MAIN REPLACEMENT

OWASA STANDARD DETAILS

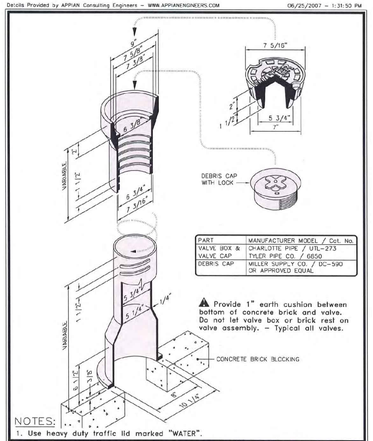
CJS PROJ. #:	001–002
DATE:	5–4–2021
SCALE:	SCALE
PROJECT ENGINEER:	SDL
DESIGNED BY:	JGB
DRAWN BY:	JGB
CHECKED BY:	JAR

D4

SHEET NUMBER 10 OF 16

Plotted By: Abigail Miller Layout: 10 OWASA STANDARD DETAILS June 18, 2021 11:29:50am O:\001 OWASA\002 High Priority Water Mains\80 – Drawings\Plan Sheets\Rogerson_Oakwood\Oakwood & Douglas (The L)\10 OWASA STANDARD DETAILS.dwg

Details Provided by APPIAN Consulting Engineers – WWW.APPIANENGINEERS.COM 06/25/2007 – 1:31:50 PM



PART	MANUFACTURER MODEL / Cat. No.
VALVE BOX & VALVE CAP	CHARLOTTE PIPE / VTL-273
DEBRIS CAP	TYLER PIPE CO. / 6650
	MILLER SUPPLY CO. / DC-590
	OR APPROVED EQUAL

⚠ Provide 1" earth cushion between bottom of concrete brick and valve. Do not let valve box or brick rest on valve assembly. – Typical all valves.

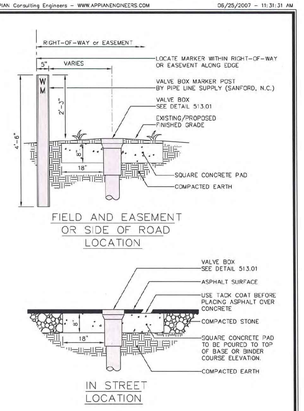
NOTES:
1. Use heavy duty traffic lid marked "WATER".

OWASA Quality Service Since 1977 — 400 Jones Ferry Road PO Box 366 Carrboro, NC 27510-0366 — ORANGE WATER AND SEWER AUTHORITY — Voice (919) 968-4421 FAX (919) 968-4464 www.owasa.org — USE WITH THE OWASA STANDARD SPECIFICATIONS ONLY

STANDARD SCREW VALVE BOX DETAIL

SCALE: No Scale | DETAIL #: s 513.01 | REVISION DATE(): August 15, 2013 | SHEET #: 1 of 1

Details Provided by APPIAN Consulting Engineers – WWW.APPIANENGINEERS.COM 06/25/2007 – 11:31:31 AM



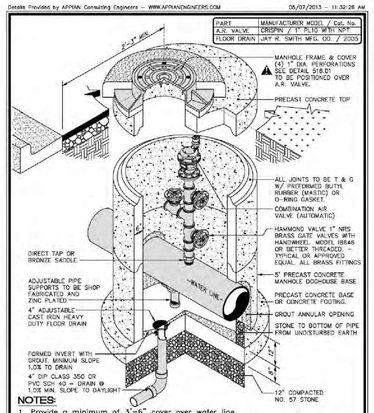
NOTES:
1. Concrete to be minimum 3,000 PSI @ 28 days.

OWASA Quality Service Since 1977 — 400 Jones Ferry Road PO Box 366 Carrboro, NC 27510-0366 — ORANGE WATER AND SEWER AUTHORITY — Voice (919) 968-4421 FAX (919) 968-4464 www.owasa.org — USE WITH THE OWASA STANDARD SPECIFICATIONS ONLY

VALVE BOX STABILIZING PAD DETAILS

SCALE: No To Scale | DETAIL #: s 513.02 | REVISION DATE(): August 15, 2013 | SHEET #: 1 of 1

Details Provided by APPIAN Consulting Engineers – WWW.APPIANENGINEERS.COM 05/07/2013 – 11:32:26 AM



PART	MANUFACTURER MODEL / Cat. No.
A.R. VALVE	CRISPIN / 1" FLIG WITH 30°F
FLOOR DRAIN	JAY R. SMITH MFG. CO. / 2005

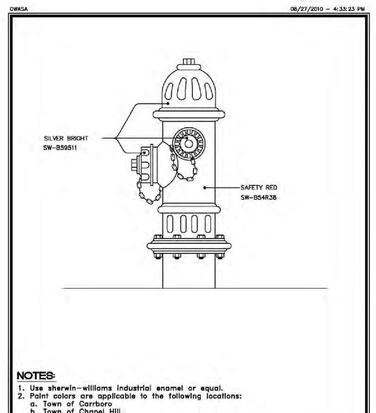
NOTES:
1. Provide a minimum of 3'-6" cover over water line.
2. Do not exceed allowable direct tap specified by pipe manufacturer, otherwise, use single strap bronze service saddle. See detail 512.06
3. Cone section may be substituted for flat top according to depth.

OWASA Quality Service Since 1977 — 400 Jones Ferry Road PO Box 366 Carrboro, NC 27510-0366 — ORANGE WATER AND SEWER AUTHORITY — Voice (919) 968-4421 FAX (919) 968-4464 www.owasa.org — USE WITH THE OWASA STANDARD SPECIFICATIONS ONLY

1" AIR RELEASE VALVE & MANHOLE (PIPE 2" to 12")

SCALE: No To Scale | DETAIL #: s 513.04 | REVISION DATE: May 7, 2013 | SHEET #: 1 of 1

OWASA 08/27/2010 – 4:33:23 PM



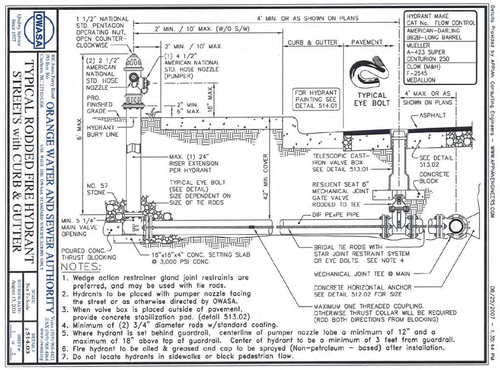
NOTES:
1. Use sherwin–williams industrial enamel or equal.
2. Paint colors are applicable to the following locations:
   a. Town of Carrboro
   b. Town of Chapel Hill
   c. Durham County
   d. Orange County
   e. University of North Carolina

OWASA Quality Service Since 1977 — 400 Jones Ferry Road Carrboro, NC 27510-0366 — ORANGE WATER AND SEWER AUTHORITY — Voice (919) 968-4421 FAX (919) 968-4464 www.owasa.org — USE WITH THE OWASA STANDARD SPECIFICATIONS ONLY

FIRE HYDRANT PAINTING SPECIFICATIONS

SCALE: Not To Scale | DETAIL #: s 514.01 | REVISION DATE: August 22, 2010 | SHEET #: 1 of 1

Plotted By: Abigail Miller Layout: 11 OWASA STANDARD DETAILS June 18, 2021 11:30:03am O:\001 OWASA\002 High Priority Water Mains\80 – Drawings\Plan Sheets\Rogerson_Oakwood\Oakwood & Douglas (The L)\11 OWASA STANDARD DETAILS.dwg

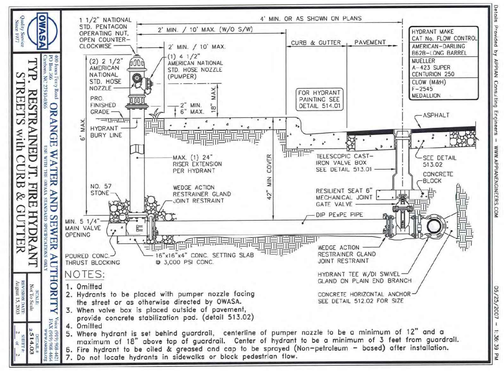


NOTES:
1. Wedge action restrainer gland joint restraints are preferred, and may be used with tie rods.
2. Hydrants to be placed with pumper nozzle facing the street or as otherwise directed by OWASA.
3. When valve box is placed outside of pavement, provide concrete stabilization pad. (detail 513.02)
4. Minimum of (2) 3/4" diameter rods w/standard coating.
5. Where hydrant is set behind guardrail, centerline of pumper nozzle tobe a minimum of 12" and a maximum of 18" above top of guardrail. Center of hydrant to be a minimum of 3 feet from guardrail.
6. Fire hydrant to be oiled & greased and cap to be sprayed (Non–petroleum – based) after installation.
7. Do not locate hydrants in sidewalks or block pedestrian flow.

OWASA Quality Service Since 1977 — ORANGE WATER AND SEWER AUTHORITY — 400 Jones Ferry Road PO Box 366 Carrboro, NC 27510-0366 — Voice (919) 968-4421 FAX (919) 968-4464 www.owasa.org — USE WITH THE OWASA STANDARD SPECIFICATIONS ONLY

TYPICAL RODDED FIRE HYDRANT STREETS with CURB & GUTTER

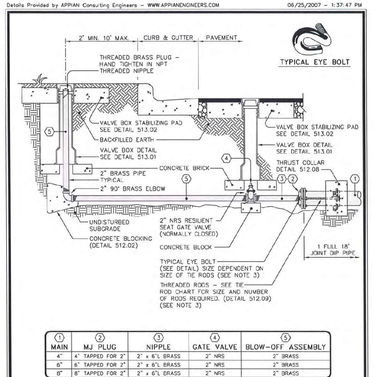
SCALE: No To Scale | DETAIL #: s 515.01 | REVISION DATE(): August 15, 2013 | SHEET #: 1 of 1



NOTES:
1. Omitted
2. Hydrants to be placed with pumper nozzle facing the street or as otherwise directed by OWASA.
3. When valve box is placed outside of pavement, provide concrete stabilization pad. (detail 513.02)
4. Omitted
5. Where hydrant is set behind guardrail, centerline of pumper nozzle to be a minimum of 12" and a maximum of 18" above top of guardrail. Center of hydrant to be a minimum of 3 feet from guardrail.
6. Fire hydrant to be oiled & greased and cap to be sprayed (Non–petroleum – based) after installation.
7. Do not locate hydrants in sidewalks or block pedestrian flow.

TYP. RESTRAINED JT. FIRE HYDRANT STREETS with CURB & GUTTER

Details Provided by APPIAN Consulting Engineers – WWW.APPIANENGINEERS.COM 06/25/2007 – 1:37:47 PM



① MAIN	② MJ PLUG	③ NIPPLE	④ GATE VALVE	⑤ BLOW–OFF ASSEMBLY
4"	4" TAPPED FOR 2"	3" x 6"L BRASS	2" NRS	2" BRASS
6"	6" TAPPED FOR 2"	3" x 6"L BRASS	2" NRS	2" BRASS
8"	8" TAPPED FOR 2"	3" x 6"L BRASS	2" NRS	2" BRASS

NOTES:
1. No discharge from blow–off should go directly into a creek. OWASA must declorinate discharge before it enters a body of water.
2. Provide erosion and sedimentation control for discharge.
3. In lieu of rodded fittings, contractor may use a wedge action restrained gland joint restraint on fittings.

OWASA Quality Service Since 1977 — 400 Jones Ferry Road PO Box 366 Carrboro, NC 27510-0366 — ORANGE WATER AND SEWER AUTHORITY — Voice (919) 968-4421 FAX (919) 968-4464 www.owasa.org — USE WITH THE OWASA STANDARD SPECIFICATIONS ONLY

PERMANENT 2" BLOW-OFF ASSEMBLY FOR MAINS UP TO 8"

SCALE: No To Scale | DETAIL #: s 514.04 | REVISION DATE(): August 15, 2013 | SHEET #: 1 of 1

No.	REVISIONS	DATE	BY

SEAL: NORTH CAROLINA PROFESSIONAL SEAL 029995 ENGINEER STEPHEN D. LEITCH

CJS Conveyance, PLLC
320 S. ACADEMY ST
CARY, NC 27511
NC LICENSE #P–1611 WWW.CJSCONVEYANCE.COM

ORANGE WATER AND SEWER AUTHORITY
CARRBORO, NORTH CAROLINA

OAKWOOD DRIVE & DOUGLAS ROAD
WATER MAIN REPLACEMENT

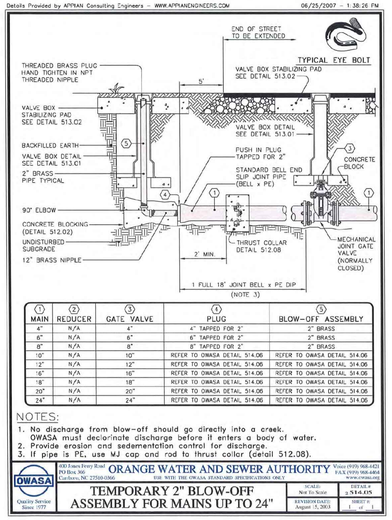
OWASA STANDARD DETAILS

CJS PROJ. #:	001–002
DATE:	5–4–2021
SCALE:	SCALE
PROJECT ENGINEER:	SDL
DESIGNED BY:	JGB
DRAWN BY:	JGB
CHECKED BY:	JAR

D5

SHEET NUMBER 11 OF 16

Details Provided by APPIAN Consulting Engineers – WWW.APPIANENGINEERS.COM 06/25/2007 – 1:38:26 PM



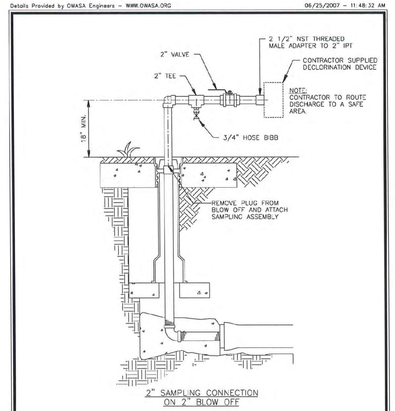
① MAIN	② REDUCER	③ GATE VALVE	④ PLUG	⑤ BLOW-OFF ASSEMBLY
4"	N/A	4"	4" TAPPED FOR 2"	2" BRASS
6"	N/A	6"	6" TAPPED FOR 2"	2" BRASS
8"	N/A	8"	8" TAPPED FOR 2"	2" BRASS
10"	N/A	10"	REFER TO OWASA DETAIL 514.06	REFER TO OWASA DETAIL 514.06
12"	N/A	12"	REFER TO OWASA DETAIL 514.06	REFER TO OWASA DETAIL 514.06
16"	N/A	16"	REFER TO OWASA DETAIL 514.06	REFER TO OWASA DETAIL 514.06
18"	N/A	18"	REFER TO OWASA DETAIL 514.06	REFER TO OWASA DETAIL 514.06
20"	N/A	20"	REFER TO OWASA DETAIL 514.06	REFER TO OWASA DETAIL 514.06
24"	N/A	24"	REFER TO OWASA DETAIL 514.06	REFER TO OWASA DETAIL 514.06

NOTES:
1. No discharge from blow-off should go directly into a creek. OWASA must decolorinate discharge before it enters a body of water.
2. Provide erosion and sedimentation control for discharge.
3. If pipe is PE, use MJ cap and rod to thrust collar (detail 512.08).

OWASA Quality Service Since 1977
400 Jones Ferry Road PO Box 366 Carrboro, NC 27510-0366
ORANGE WATER AND SEWER AUTHORITY
Voice (919) 968-4421 FAX (919) 968-4464 www.owasa.org
USE WITH THE OWASA STANDARD SPECIFICATIONS ONLY

TEMPORARY 2" BLOW-OFF ASSEMBLY FOR MAINS UP TO 24"	SCALE: Not To Scale	DETAIL #: 514.05
	REVISION DATE(S): August 15, 2013	SHEET #: 1 of 1

Details Provided by OWASA Engineers – WWW.OWASA.ORG 06/25/2007 – 11:48:32 AM



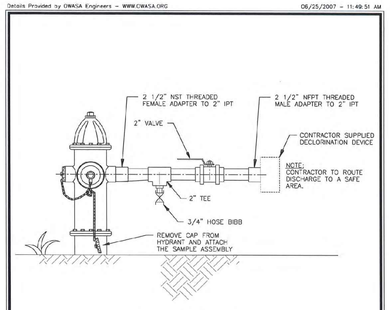
2" SAMPLING CONNECTION ON 2" BLOW OFF

NOTE:
ALL PIPING, VALVES AND FITTINGS SHALL BE IN ACCORDANCE WITH OWASA SPECIFICATIONS.

OWASA Quality Service Since 1977
400 Jones Ferry Road PO Box 366 Carrboro, NC 27510-0366
ORANGE WATER AND SEWER AUTHORITY
Voice (919) 968-4421 FAX (919) 968-4464 www.owasa.org
USE WITH THE OWASA STANDARD SPECIFICATIONS ONLY

PURITY SAMPLING CONNECTION DETAILS - 2" BLOW OFF LINE	SCALE: No To Scale	DETAIL #: 514.07
	REVISION DATE: February 7, 2006	SHEET #: 1 of 1

Details Provided by OWASA Engineers – WWW.OWASA.ORG 06/25/2007 – 11:49:51 AM



2" SAMPLING CONNECTION ON FIRE HYDRANT

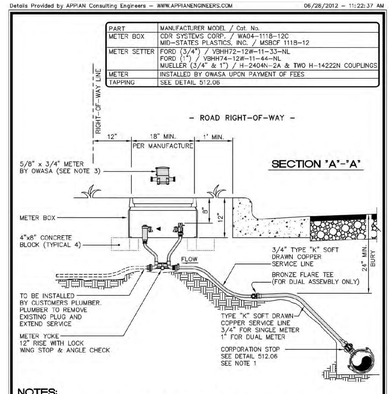
NOTE:
ALL PIPING, VALVES AND FITTINGS SHALL BE IN ACCORDANCE WITH OWASA SPECIFICATIONS.

OWASA Quality Service Since 1977
400 Jones Ferry Road PO Box 366 Carrboro, NC 27510-0366
ORANGE WATER AND SEWER AUTHORITY
Voice (919) 968-4421 FAX (919) 968-4464 www.owasa.org
USE WITH THE OWASA STANDARD SPECIFICATIONS ONLY

PURITY SAMPLING CONNECTION DETAILS - ON FIRE HYDRANT	SCALE: No To Scale	DETAIL #: 514.08
	REVISION DATE: February 7, 2006	SHEET #: 1 of 1

Details Provided by APPIAN Consulting Engineers – WWW.APPIANENGINEERS.COM 06/28/2012 – 11:22:37 AM

METER BOX	MANUFACTURER MODEL / Cat. No.
	CDR SYSTEMS CORP. / WA34-1118-12C
	MID-STATES PLASTICS, INC. / MSBOF 1118-12
METER SETTER	FORD (3/4") / VBH912-12W-11-33-NL
	FORD (1") / VBH974-12W-11-44-NL
	MUELLER (3/4" & 1") / H-24045-2A & TWO H-14222N COUPLINGS
METER	INSTALLED BY OWASA UPON PAYMENT OF FEES
TAPPING	SEE DETAIL 512.06

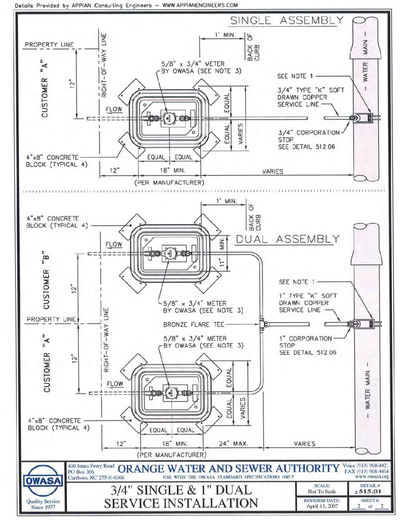


NOTES:
1. Bronze service saddles shall be used on all service connections. Direct taps shall be made only as directed by an OWASA representative. See tapping detail 512.06.
2. Omitted
3. If installation is for stub-out meter, meter should be purchased from OWASA. (At applicants expense)
4. Meter must be level across meter connections.
5. Substitution requires approval by OWASA's Director of Engineering.

OWASA Quality Service Since 1977
400 Jones Ferry Road PO Box 366 Carrboro, NC 27510-0366
ORANGE WATER AND SEWER AUTHORITY
Voice (919) 968-4421 FAX (919) 968-4464 www.owasa.org
USE WITH THE OWASA STANDARD SPECIFICATIONS ONLY

3/4" SINGLE & 1" DUAL SERVICE INSTALLATION	SCALE: Not To Scale	DETAIL #: 515.01
	REVISION DATE: June 28, 2012	SHEET #: 1 of 2

Details Provided by APPIAN Consulting Engineers – WWW.APPIANENGINEERS.COM



OWASA Quality Service Since 1977
400 Jones Ferry Road PO Box 366 Carrboro, NC 27510-0366
ORANGE WATER AND SEWER AUTHORITY
Voice (919) 968-4421 FAX (919) 968-4464 www.owasa.org
USE WITH THE OWASA STANDARD SPECIFICATIONS ONLY

3/4" SINGLE & 1" DUAL SERVICE INSTALLATION	SCALE: Not To Scale	DETAIL #: 515.01
	REVISION DATE: April 15, 2017	SHEET #: 2 of 2

Plotted By: Abigail Miller Layout: 12 OWASA STANDARD DETAILS June 18, 2021 11:30:15am O:\001 OWASA\002 High Priority Water Mains\80 – Drawings\Plan Sheets\Rogerson_Oakwood\Oakwood & Douglas (The L)\12 OWASA STANDARD DETAILS.dwg

No.	REVISIONS	DATE	BY

SEAL: NORTH CAROLINA PROFESSIONAL SEAL 029995 ENGINEER STEPHEN D. LEITCH

CJS Conveyance, PLLC
320 S. ACADEMY ST
CARY, NC 27511
NC LICENSE #P-1611 WWW.CJSCONVEYANCE.COM

ORANGE WATER AND SEWER AUTHORITY
CARRBORO, NORTH CAROLINA

OAKWOOD DRIVE & DOUGLAS ROAD
WATER MAIN REPLACEMENT

OWASA STANDARD DETAILS

CJS PROJ. #:	001-002
DATE:	5-4-2021
SCALE:	SCALE
PROJECT ENGINEER:	SDL
DESIGNED BY:	JGB
DRAWN BY:	JGB
CHECKED BY:	JAR

D6

SHEET NUMBER 12 OF 16

EROSION CONTROL NOTES

UNLESS OTHERWISE INDICATED, ALL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE EROSION CONTROL LAWS OF THE STATE OF NORTH CAROLINA, SPECIFICALLY THE SEDIMENT POLLUTION CONTROL ACT OF 1973, AS AMENDED, AND THE LOCAL EROSION AND SEDIMENT CONTROL ORDINANCES.

1. BEFORE ANY WORK BEGINS, GIVE NOTICE TO NCDEQ – LAND QUALITY SECTION, AT RALEIGH REGIONAL OFFICE, OF THE START DATE BY PHONE AT 919–791–4200 AND IN WRITING AT THE FOLLOWING ADDRESS:

   NCDEQ – LQS–RALEIGH REGIONAL OFFICE
   1628 MAIL SERVICE CENTER
   RALEIGH, NC 27699–1628
   ATTN: JOE DUPREE

2. SEE CIVIL LEGEND ON SHEET G2 FOR ALL EROSION CONTROL MEASURE SYMBOLS AND LINETYPES.
3. EROSION CONTROL MEASURES SHALL BE INSTALLED AS SHOWN ON THE DRAWINGS AND/OR AS REQUIRED FOR UTILITY INSTALLATION.
4. A RAIN GAUGE WILL BE INSTALLED ON SITE. EACH EROSION AND SEDIMENT CONTROL MEASURE SHALL BE INSPECTED ON A WEEKLY BASIS AND WITHIN 24 HOURS FOLLOWING A STORM EVENT GREATER THAN ONE–HALF INCH.
5. COPIES OF THE PLAN APPROVED BY NCDENR OFFICE, PLAN APPROVAL LETTER WITH ANY MODIFICATIONS OR PERFORMANCE RESERVATIONS, ANY 401/404 DOCUMENTATION, AND A MINIMUM OF THE PAST 30 DAYS OF SELF–INSPECTION REPORTS WILL BE KEPT ON SITE UNTIL PROJECT IS CLOSED OUT.
6. IF EXCAVATED SOIL IS PLACED ON ANY ROADWAY PAVEMENT DURING CONSTRUCTION, CONTRACTOR SHALL PROVIDE SAND OR SCREENING FINES ALONG PAVEMENT SURFACE FOR SUFFICIENT REMOVAL OF SEDIMENT.
7. ALL EROSION AND SEDIMENTATION CONTROL MEASURES MUST BE MAINTAINED UNTIL ALL UPGRADE DRAINAGE AREAS HAVE BEEN STABILIZED WITH THE ESTABLISHMENT OF PERMANENT VEGETATION.
8. ANY DEWATERING ON THE PROJECT IS TO BE DONE THROUGH A SILT BAG.
9. ALL GROUND COVER IS TO BE APPLIED PER CONDITIONS OF THE NPDES PERMIT OR IN CRITICAL AREAS AT END OF DAY.
10. BEFORE DEPOSITING EXCAVATED MATERIAL ON PAVED SURFACES, PLACE A LAYER OF SAND, FINES, OR SCREENINGS TO FACILITATE IN CLEAN UP.

CONSTRUCTION SEQUENCE:

1. EROSION AND SEDIMENT CONTROL (E&SC) PERMIT AND A CERTIFICATE OF COVERAGE MUST BE OBTAINED BEFORE ANY LAND DISTURBING ACTIVITIES OCCUR. THE CERTIFICATE OF COVERAGE (COC) CAN BE OBTAINED BY FILLING OUT THE ELECTRONIC NOTICE OF INTENT (E–NOI) FORM AT DEQ.NC.GOV/NCG01. PLEASE NOTE, THE E–NOI FORM MAY ONLY BE FILLED OUT ONCE THE PLANS HAVE BEEN APPROVED. A COPY OF THE E&SC PERMIT, THE COC, AND A HARD COPY OF THE EROSION CONTROL PLAN MUST BE KEPT ON SITE, PREFERABLY IN A PERMITS BOX, AND ACCESSIBLE DURING INSPECTION.
2. FLAG WORK LIMITS AND MARK PROPOSED LIMITS OF DISTURBANCE.
3. PRIOR TO BEGINNING CONSTRUCTION, CALL THE STORMWATER INSPECTIONS EASTERN REGIONAL COORDINATOR AT (919) 278–6461 TO SCHEDULE AN ON–SITE PRE–CONSTRUCTION MEETING.
4. INSTALL ALL INLET PROTECTION AS SHOWN ON DRAWINGS.
5. INSTALL SILT FENCE AND OTHER INLET CONTROL MEASURES AS SHOWN ON DRAWINGS.
6. CALL THE RAPID RESPONSE NUMBER (919) 857–4412 TO SCHEDULE A STORMWATER SITE INSPECTION.
7. UPON APPROVAL OF THE STORMWATER SITE INSPECTION, COMMENCE PERMITTED LAND DISTURBING ACTIVITY.
8. SAW CUT PAVEMENT AS NEEDED FOR TRENCHING.
9. DIG TRENCHING FOR WATER MAIN AS NEED AND STOCKPILE SOIL IN ACCORDANCE WITH SPECIFICATIONS.
10. INSTALL WATER MAIN PIPES, AND ANY RELATED FITTINGS, APPURTENANCES, AND ACCESSORIES IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS.
11. AT THE END OF EACH WORK DAY, INSTALL TEMPORARY PAVING/PATCHING, AND/OR GROUND COVER IN ACCORDANCE WITH THE PROVIDED SPECIFICATIONS AND AS DIRECTED.
12. INSPECT AND MAINTAIN ALL EROSION CONTROL MEASURES IN ACCORDANCE WITH SHEETS EC4 AND EC5.
    12.1. WHERE APPROVED MEASURES FAIL TO PREVENT ACCELERATED EROSION, OFF SITE SEDIMENTATION, OR REPETITIVE NONCOMPLIANCE ISSUES, ADDITIONAL MEASURES AND/OR INCREASED MAINTENANCE OR FREQUENCY SHALL BE REQUIRED.
    12.2. MODIFICATIONS TO THE APPROVED AND PERMITTED PLANS SHALL BE APPROVED BY STORMWATER INSPECTIONS PRIOR TO REMOVAL OR INSTALLATION, CONTACT STORMWATER INSPECTIONS REGIONAL COORDINATOR AT (919) 278–6461 TO REQUEST AN INSPECTION AND OBTAIN A STORMWATER INSPECTOR'S SIGN–OFF ON THE PLANS OR AN APPROVED FIELD REVISION.
13. TEST WATER FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS AND NCDEQ REQUIREMENTS.
14. PROVIDE PERMANENT PAVEMENT IN ACCORDANCE WITH THE SPECIFICATIONS UPON ACCEPTANCE OF THE WATER MAINS.
15. RESTORE ANY DISTURBED GROUND SURFACE WITHIN THE RIGHT–OF–WAY TO PRE–CONSTRUCTION STATE; RESEED AND REGROW VEGETATIVE COVER IN ACCORDANCE WITH PERMANENT SEEDING REQUIREMENTS.
16. ONCE LAND DISTURBING ACTIVITIES ARE COMPLETE AND THE SITE IS STABILIZED, CALL THE STORMWATER INSPECTIONS REGIONAL COORDINATOR AT (919) 278–6461 TO REQUEST AN INSPECTION AND OBTAIN APPROVAL TO REMOVE TEMPORARY MEASURES.
17. ONCE THE PROJECT IS COMPLETE, TEMPORARY MEASURES ARE REMOVED, AND THE SITE IS STABILIZED, CALL THE RAPID RESPONSE NUMBER (919) 857–4412 TO SCHEDULE A STORMWATER FINAL INSPECTION. FULL STABILIZATION FOR THE ENTIRE SITE IS REQUIRED AT THIS TIME.
18. WHEN THE PROJECT IS COMPLETE, THE PERMITEES SHALL CONTACT DEMLR TO CLOSE OUT THE E&SC PLAN. AFTER DEMLR INFORMS THE PERMITEE OF DEQ.NC.GOV/NCG01 TO SUBMIT AN ELECTRONIC COTICE OF TERMINATION (E–NOT). A $100 ANNUAL GENERAL PERMIT FEE WILL BE CHARGED UNTIL THE E–NOT HAS BEEN FILLED OUT. THIS FEE SHALL BE PAID BY THE CONTRACTOR.

TEMPORARY AND PERMANENT SEEDING SCHEDULE AND MULCH RATES

PART 1 – TEMPORARY AND PERMANENT NON LAWN SEEDING MEASURES

A. GENERAL:

i. AFTER CONSTRUCTION IS COMPLETE IN ANY AREA OR PHASE OF THE PROJECT, THE DISTURBED AREAS SHALL RECEIVE A PERMANENT GROUND COVER. SEEDING AND MULCHING SHALL BE PERFORMED IMMEDIATELY BEHIND CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE PERMANENT SEEDING IN ALL DISTURBED AREAS AS INDICATED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL ADAPT PERMANENT SEEDING OPERATIONS TO PROTECT AND TO ACCOMMODATE ANY TEMPORARY SEEDING AND SOIL AND EROSION CONTROL MEASURES THAT MAY ALREADY BE IN PLACE DURING THE WORK PERIOD. MUST USE NATIVE SEED MIXES ONLY.

ii. WHEN SEEDING MUST TAKE PLACE OUT OF SEASON FOR PERMANENT GRASS THE APPROPRIATE TEMPORARY SEEDING SHALL BE DONE AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR PERMANENT SEEDING AS SPECIFIED IN SEASON AT NO ADDITIONAL COST TO OWNER.

iii. CONTRACTOR SHALL BE RESPONSIBLE FOR TURF MAINTENANCE THROUGH SUBSTANTIAL COMPLETION. SLOPES MUST BE AT 90% COVERAGE AT SUBSTANTIAL COMPLETION REVIEW TO BE ACCEPTED. IF NOT AT 90% COVERAGE, SUBSTANTIAL COMPLETION WILL BE DELAYED UNTIL THE FOLLOWING GROWING SEASON.

iv. USE ONLY NON–PLASTIC–CONTAINING MATERIALS, MADE WITH 100% NATURAL FIBERS. EXAMPLES: JUTE (NOT "POLY JUTE"), STRAW, SISAL, OR COIR.

B. SITE PREPARATION AND INSTALLATION:

i. GROUND COVER: ALL DISTURBED AREAS SHALL BE DRESSED TO A DEPTH OF FIVE (5) INCHES. THE TOP TWO (2) INCHES SHALL BE PULVERIZED TO PROVIDE UNIFORM SEEDBED. RAKE OR HARROW THE SITE TO ESTABLISH A SMOOTH AND LEVEL FINAL GRADE. SOIL PARTICLES SHOULD BE NO LARGER THAN MARBLE SIZE, AND PEA GRAVEL SIZE IS EVEN BETTER. AGRICULTURAL LIME SHALL BE APPLIED AT THE RATE OF 95 LBS./1000 SQ. FT. IMMEDIATELY BEFORE PLOWING. GRASS SEED SHALL BE APPLIED AT THE RATES OUTLINED IN TABLES 1 AND 2.

ii. 5–10–10 FERTILIZER SHALL BE APPLIED TO ALL DISTURBED AREAS AT A RATE OF 21 LBS./1000 SQ. FT. MULCHING SHALL CONSIST OF SMALL GRAIN STRAW APPLIED AT A RATE OF 2 TONS/ACRE. MULCHED AREAS SHALL BE TACKED WITH ASPHALT OR OTHER APPROVED METHOD SUFFICIENT TO HOLD THE STRAW IN PLACE, AT A RATE OF 10 GALLONS/1000 SQ. FT.

iii. WHEN SEEDING MUST TAKE PLACE OUT OF SEASON FOR PERMANENT GRASS THE APPROPRIATE TEMPORARY SEEDING SHALL BE DONE AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR PERMANENT SEEDING AS SPECIFIED IN SEASON AT NO ADDITIONAL COST TO OWNER.

GROUND STABILIZATION*

SITE AREA DESCRIPTION	STABILIZATION TIME FRAME	STABILIZATION TIME FRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50 FEET IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE (EXCEPT FOR PERIMETERS AND HQW ZONES)

* "EXTENSIONS OF TIME MAY BE APPROVED BY THE PERMITTING AUTHOIRTY BASED ON WEATHER OR OTHER SITE-SPECIFIC CONDITIONS THAT MAKE COMPLIANCE IMPRACTICABLE." (SECTION II.B(2)(B) NPDES GENERAL PERMIT FOR CONSTRUCTION ACTIVITIES)

C. CLEANUP AND INSPECTION:

i. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL REMOVE FROM THE SITE ALL EQUIPMENT AND OTHER ARTICLES USED. ALL EXCESS SOIL, STONE, AND DEBRIS SHALL BE REMOVED AND LEGALLY DISPOSED OF AT NO ADDITIONAL COST TO THE OWNER. ALL WORK AREAS SHALL BE LEFT IN A CLEAN AND NEAT CONDITION. ALL DAMAGE TO EXISTING CONSTRUCTION CAUSED BY LANDSCAPING OPERATIONS SHALL BE REPAIRED TO THE SATISFACTION OF THE TOWN AT THE CONTRACTOR'S EXPENSE.

ii. SEEDED AREAS SHALL BE PROTECTED AND REPLANTED AS NECESSARY TO ESTABLISH A UNIFORM STAND OF SPECIFIED GRASS. SCATTERED BARE SPOTS, NONE OF WHICH SHALL BE LARGER THAT ONE (1) SQUARE FOOT, WILL BE ALLOWED UP TO A MAXIMUM OF 3% OF THE SEEDED AREA FOR EACH PROPERTY. WHEN SEEDED AREAS ARE READY FOR INSPECTION, THE MAINTAINED TURF AREAS SHALL BE NEATLY MOWED TO THE UNIFORM HEIGHT OF APPROXIMATELY TWO AND ONE–HALF (2.5) INCHES. THE SEEDED AREAS SHALL BE CONSIDERED ESTABLISHED ONLY WHEN THE SPECIFIED GRASS IS VIGOROUS AND GROWING WELL IN ADDITION TO MEETING THE OTHER REQUIREMENTS SPECIFIED.

TABLE 1 : SHOULDERS, SIDE DITCHES, SLOPES
(FOR SLOPES BETWEEN 2:1 AND 3:1)

DATE	TYPE	PLANTING RATE
MAR 1 – APR 15	ADD TALL FESCUE OR	120 LBS/ACRE
MAR 1 – JUN 30	ADD HULLED COMMON BERMUDA GRASS	25 LBS/ACRE
JUN 1 – SEPT 1	*** TALL FESCUE AND *** BROWNTOP MILLET OR *** SORGHUM–SUDAN HYBRIDS	120 LBS/ACRE 35 LBS/ACRE 30 LBS/ACRE
SEPT 1 – MAR 1	(UNHULLED/UNSCARIFIED) AND TALL FESCUE	70 LBS/ACRE 120 LBS/ACRE
NOV 1 – MAR 1	ADD ABRUZZI RYE	25 LBS/ACRE

iii. AN INSPECTION OF THE COMPLETED SEEDING SHALL BE MADE AT THE CONCLUSION OF THE LANDSCAPE WORK UPON WRITTEN NOTICE REQUESTING SUCH INSPECTION SUBMITTED BY THE CONTRACTOR TO THE ENGINEER, AT LEAST TEN (10) DAYS PRIOR TO THE ANTICIPATED DATE OF INSPECTION.

iv. A FINAL INSPECTION SHALL BE PERFORMED WHEN A SATISFACTORY STAND OF SEEDED TURF GRASS HAS BEEN PRODUCED, UPON WRITTEN NOTICE REQUESTING SUCH INSPECTION SUBMITTED BY THE CONTRACTOR TO THE ENGINEER, AT LEAST TEN (10) DAYS PRIOR TO THE ANTICIPATED DATE OF INSPECTION. IF A SATISFACTORY STAND OF TURF HAS NOT BEEN PRODUCED AT THE TIME OF FINAL INSPECTION, NECESSARY REPAIRS SHALL BE PERFORMED IN CONFORMANCE WITH THE REQUIREMENTS OF THIS SECTION. UPON COMPLETION OF THESE REPAIRS, THE SEEDED GRASS SHALL BE REINSPECTED UPON WRITTEN NOTICE AS ABOVE.

TABLE 2 : SHOULDERS, SIDE DITCHES, SLOPES
(FOR SLOPES 3:1 AND FLATTER)

DATE	TYPE	PLANTING RATE
AUG 15 – NOV 1	TALL FESCUE	300 LBS/ACRE
NOV 1 – MAR 1	TALL FESCUE AND ABRUZZI RYE	300 LBS/ACRE
MAR 1 – APR 15	TALL FESCUE	300 LBS/ACRE
APR 15 – JUN 30	HULLED COMMON BERMUDA GRASS	25 LBS/ACRE
JUL 15 – AUG 15	*** TALL FESCUE AND *** BROWNTOP MILLET OR *** SORGHUM–SUDAN HYBRIDS	35 LBS/ACRE

TABLE 1 & 2 NOTES:

CONSULT STORMWATER MANAGEMENT ENGINEER OR NATURAL RESOURCES CONSERVATION SERVICE (NRCS) FOR ADDITIONAL INFORMATION CONCERNING OTHER ALTERNATIVES FOR VEGETATION OF DENUDED AREAS. THE ABOVE VEGETATION RATES ARE THOSE, WHICH DO WELL UNDER LOCAL CONDITIONS; OTHER SEEDING RATE COMBINATIONS MAY BE POSSIBLE BUT MUST BE APPROVED BY THE ENGINEER.

***TEMPORARY – RESEED ACCORDING TO OPTIMUM SEASON FOR DESIRED PERMANENT VEGETATION. DO NOT ALLOW TEMPORARY COVER TO GROW OVER 12 INCHES IN HEIGHT BEFORE MOWING TO KEEP FESCUE FROM BEING SHADED OUT.

REVIEW REQUIREMENTS IN DEQ LAND QUALITY EROSION CONTROL PLAN APPROVAL TO DETERMINE IF THE APPROVAL HAS ANY RESTRICTIONS.

PART 2 – PERMANENT LAWN SEEDING MEASURES

A. GENERAL:

i. THE FOLLOWING INFORMATION SHALL BE APPLICABLE FOR ALL PERMANENT LAWN SEEDING. PERMANENT LAWN SEEDING SHALL TAKE PLACE WITHIN ALL DEVELOPED AREAS OF DISTURBANCE INCLUDING RESIDENTIAL AND COMMERCIAL AREAS AND SHALL BE REPLACED IN KIND OF EXISTING MATERIAL BY THE CONTRACTOR. AN APPROVED TURF TYPE TALL FESCUE BLEND SHALL BE USED PER THE CONTRACT DOCUMENTS. KENTUCKY 31 IS NOT AN ACCEPTABLE BLEND. MUST USE NATIVE SEED MIXES ONLY.

ii. WHEN SEEDING MUST TAKE PLACE OUT OF SEASON FOR PERMANENT GRASS THE APPROPRIATE TEMPORARY SEEDING SHALL BE DONE AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR PERMANENT SEEDING AS SPECIFIED IN SEASON AT NO ADDITIONAL COST TO OWNER.

iii. CONTRACTOR SHALL BE RESPONSIBLE FOR LAWN MAINTENANCE THROUGH SUBSTANTIAL COMPLETION. LAWNS MUST BE AT 90% COVERAGE AT SUBSTANTIAL COMPLETION REVIEW TO BE ACCEPTED. IF NOT AT 90% COVERAGE, SUBSTANTIAL COMPLETION WILL BE DELAYED UNTIL THE FOLLOWING GROWING SEASON.

B. SITE PREPARATION:

i. REMOVE OR KILL ANY UNDESIRABLE EXISTING TURF OR VEGETATION. HERBICIDE SPRAYING OR OTHER CHEMICAL TREATMENT SHALL BE APPROVED BY THE ENGINEER PRIOR TO BEING USED BY THE CONTRACTOR. IF PREEXISTING TURF OR OTHER VEGETATION IS MIXED WITH THE SOIL TO BE REUSED, THE CONTRACTOR SHALL USE BEST JUDGEMENT IN REMOVING IT OR INCORPORATING IT INTO THE SOIL DURING PREPARATION.

ii. IF TOPSOIL WAS NOT USED TO REESTABLISH THE UPPER SOIL LAYER AND THE UPPER SOIL IS HEAVY WITH HIGH CLAY CONTENT, SPREAD 1.5–2 INCHES OF AGED GROUND PINE BARK OR BAGGED ORGANIC HUMUS OVER THE AREA TO BE REPAIRED.

iii. FOR ALL GRASSES EXCEPT CENTIPEDE GRASS, APPLY PER 1,000 SQUARE FEET: A MINIMUM OF 95 POUNDS OF AGRICULTURAL LIME AND ONE OF THE FOLLOWING FERTILIZERS: 40 POUNDS OF 5–10–10; 20 POUNDS OF 10–20–20; OR 20 POUNDS OF 8–8–8 OR 10–10–10 IN COMBINATION WITH 4 POUNDS OF 0–46–0. CENTIPEDE GRASS PREFERS ACIDIC SOILS AND LOW LEVELS OF PHOSPHORUS AND MAY NOT REQUIRE THE ADDITION OF LIME AND PHOSPHORUS. ALSO, ONCE CONSTRUCTION BEGINS, SOIL TESTING WILL BE CONDUCTED, AND DEPENDING ON THE RESULTS, ADDITIONAL LIME SHALL BE ADDED BY THE CONTRACTOR.

iv. INCORPORATE LIME AND FERTILIZER (AND PINE BARK IF ADDED) INTO THE TOP 6 INCHES OF THE SOIL USING A ROTOTILLER OR BY HAND. ROTOTILL OR HAND CULTIVATE TO WELL INCORPORATE THE AMENDMENTS AND GET A UNIFORM LOOSELY TEXTURED SOIL OF MINIMUM 6–INCH DEPTH.

v. RAKE OR HARROW THE SITE TO ESTABLISH A SMOOTH AND LEVEL FINAL GRADE. SOIL PARTICLES SHOULD BE NO LARGER THAN MARBLE SIZE, AND PEA GRAVEL SIZE IS EVEN BETTER. HAND RAKING TO LEVEL THE SOIL AND WORK OUT HILLS AND HOLLOWS. FOR AREAS LARGER THAN 100 SQ. FT. ALLOW RAIN OR IRRIGATE TO SETTLE THE SOIL. IN SOME SITUATIONS, THE ENGINEER MAY REQUIRE ROLLING OR CULTIPACKING TO FIRM THE SOIL BEFORE SEEDING. HAND RAKE AGAIN TO BREAK UP THE CRUSTY SURFACE BEFORE SEEDING OR PLANTING.

C. INSTALLATION:

ii. GENERAL:

a. SEED OR PLANT THE REQUIRED GRASS ACCORDING TO TABLE 3.

b. THE CHOICE OF TURFGRASS TYPE, VARIETY AND PROPAGATION FORM SHALL BE SPECIFIED IN THE CONTRACT DOCUMENTS, AS SPECIFIED IN THE ITEMIZED PROPOSAL, OR AS DESIGNATED BY THE ENGINEER.

c. SEED SHALL BE TAGGED CERTIFIED SEED. GERMINATION SHALL BE A MINIMUM OF 95% SEED SHALL BE 98% PURE WITH LESS THAN 2% OTHER–CROP SEED OR DEBRIS. SEED SHALL BE FREE OF NOXIOUS WEED SEED.

d. SOD, SPRIGS, PLUGS OR OTHER VEGETATIVE PLANT PROPAGATION MATERIALS SHALL BE CERTIFIED FREE OF NOXIOUS WEEDS. MATERIALS SHALL BE IN GOOD HEALTH AND VIGOR, FREE OF DISEASE OR PESTS, OR DAMAGE FROM DRYNESS, ADVERSE TEMPERATURE, HERBICIDES, FERTILIZER OR OTHER CHEMICALS. SPRIGS THAT ARE OLDER THAN 48 HOURS ARE NOT ACCEPTABLE REGARDLESS OF CONDITION.

e. THE CONTRACTOR SHALL MAINTAIN A LOG OF DATES THAT SOD, SPRIGS, PLUGS, OR OTHER SEEDING INSTALLATION WAS COMPLETED FOR EACH INDIVIDUAL PROPERTY AND SHALL NOTIFY THE ENGINEER OR INSPECTOR OF EACH DAY'S PROGRESS.

ii. SEEDING:

a. SOW THE SEED ON FRESHLY PREPARED SOIL. ENSURE UNIFORM COVERAGE BY USING A CENTRIFUGAL (ROTARY) OR DROP–TYPE SPREADER. AREAS LARGER THAN 100 SQ. FT. SHALL BE SEEDED WITH A MINIMUM OF TWO PASSES AT THE APPROPRIATE PARTIAL RATE FOR EACH PASS. FOR AREAS AVERAGING GREATER 15 FT. WIDTH, APPLY HALF THE SEED IN ONE DIRECTION AND THE OTHER HALF AT RIGHT ANGLES TO THE FIRST DIRECTION.

b. APPLY A STARTER–TYPE FERTILIZER TO THE SOIL SURFACE FOR EXAMPLE, 10 POUNDS OF 5–10–10 OR 5 POUNDS OF 10–20–20 PER 1,000 SQUARE FEET AT THE TIME OF SEEDING.

c. LIGHTLY COVER THE SEED BY HAND RAKING OR DRAGGING WITH A MAT OR CHAIN–LINK FENCE. ROLL OR TAMP THE SOIL LIGHTLY TO FIRM THE SURFACE AND PROVIDE GOOD SEED–TO–SOIL CONTACT.

d. MULCHING SHALL CONSIST OF SMALL GRAIN STRAW APPLIED AT A RATE OF 2 TONS PER ACRE. MULCHED AREAS SHALL BE TACKED WITH ASPHALT OR OTHER APPROVED METHOD SUFFICIENT TO HOLD THE STRAW IN PLACE, AT A RATE OF 400 GALLONS PER ACRE.

D. CLEANUP AND INSPECTION:

i. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL REMOVE FROM THE SITE ALL EQUIPMENT AND OTHER ARTICLES USED. ALL EXCESS SOIL, STONE, AND DEBRIS SHALL BE REMOVED AND LEGALLY DISPOSED OF AT NO ADDITIONAL COST TO THE OWNER. ALL WORK AREAS SHALL BE LEFT IN A CLEAN AND NEAT CONDITION. ALL DAMAGE TO EXISTING CONSTRUCTION CAUSED BY LANDSCAPING OPERATIONS SHALL BE REPAIRED TO THE SATISFACTION OF THE TOWN AT THE CONTRACTOR'S EXPENSE.

ii. SEEDED AREAS SHALL BE PROTECTED AND REPLANTED AS NECESSARY TO ESTABLISH A UNIFORM STAND OF SPECIFIED GRASS. SCATTERED BARE SPOTS, NONE OF WHICH SHALL BE LARGER THAT ONE (1) SQUARE FOOT, WILL BE ALLOWED UP TO A MAXIMUM OF 3% OF THE SEEDED AREA FOR EACH PROPERTY. WHEN SEEDED AREAS ARE READY FOR INSPECTION, THE MAINTAINED TURF AREAS SHALL BE NEATLY MOWED TO THE UNIFORM HEIGHT OF APPROXIMATELY TWO AND ONE–HALF (2.5) INCHES. THE LAWNS SHALL BE CONSIDERED ESTABLISHED ONLY WHEN THE SPECIFIED GRASS IS VIGOROUS AND GROWING WELL IN ADDITION TO MEETING THE OTHER REQUIREMENTS SPECIFIED.

iii. AN INSPECTION OF THE COMPLETED SEEDING SHALL BE MADE AT THE CONCLUSION OF THE LANDSCAPE WORK UPON WRITTEN NOTICE REQUESTING SUCH INSPECTION SUBMITTED BY THE CONTRACTOR TO THE ENGINEER, AT LEAST TEN (10) DAYS PRIOR TO THE ANTICIPATED DATE OF INSPECTION.

iv. FINAL INSPECTION SHALL BE PERFORMED WHEN A SATISFACTORY STAND OF SEEDED TURF GRASS HAS BEEN PRODUCED, UPON WRITTEN NOTICE REQUESTING SUCH INSPECTION SUBMITTED BY THE CONTRACTOR TO THE ENGINEER, AT LEAST TEN (10) DAYS PRIOR TO THE ANTICIPATED DATE OF INSPECTION. IF A SATISFACTORY STAND OF TURF HAS NOT BEEN PRODUCED AT THE TIME OF FINAL INSPECTION, NECESSARY REPAIRS SHALL BE PERFORMED IN CONFORMANCE WITH THE REQUIREMENTS OF THIS SECTION. UPON COMPLETION OF THESE REPAIRS, THE SEEDED GRASS SHALL BE RE–INSPECTED UPON WRITTEN NOTICE AS ABOVE.

TABLE 3 : LAWN SEEDING
(COOL AND WARM SEASON GRASSES)

LAWN GRASS	PLANTING DATES[1]	TYPICAL PLANTING RATE/1,000 SQ. FT. SEEDS[2]	SPACE[3] PLANTING	SPRIGGING[4]
TALL FESCUE	MAR 1 TO OCT 15 (AUG 15 TO OCT 1 OPTIMUM)	6	–	–
TALL FESCUE/ANNUAL (WINTER) RYE	OCT 15 TO MAR 1	6 FESCUE 1 RYE	–	–
BURMUDA GRASS (SEED)	APR 1 TO AUG 15	1 TO 2	–	–
BURMUDA GRASS (VEGETATIVE)	APR 15 TO AUG 30	–	5[4]	5
CENTIPEDE GRASS	MARCH TO JULY	0.25 TO 0.50	5[4]	–
ZOYSIA GRASS	APRIL TO JULY	–	5[4]	5
ST. AUGUSTINE GRASS	APRIL TO JULY	–	5[4]	–

TABLE 3 NOTES:

1 – SOD CONSISTING OF COOL–SEASON GRASSES CAN BE INSTALLED ANYTIME THE GROUND IS NOT FROZEN. SOD CONSISTING OF WARM–SEASON GRASSES CAN BE INSTALLED AS LONG AS SOIL TEMPERATURE EXCEEDS 55° F. (TYPICALLY APRIL 15 TO OCT. 1).
2 – POUNDS OF SEED PER 1,000 SQ. FT.
3 – SQUARE YARDS OF TURF CUT INTO 2–INCH CENTERS TO PLANT 1,000 SQ. FT.
4 – BUSHELS OF SPRIGS PER 1,000 SQ. FT. (1 SQ. YD. OF TURF PULLED APART IS EQUIVALENT TO 1 BUSHEL OF SPRIGS).

NOTIFICATION OF LAND RESOURCES SEDIMENT AND EROSION CONTROL SELF–INSPECTION PROGRAM:

THE SEDIMENT 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 AS AN EXCEL SPREADSHEET FROM http://www.dlr.enr.state.nc.us/pages/sedimentation_new.html. IF YOU HAVE QUESTIONS OR CANNOT ACCESS THE FORM, PLEASE CONTACT THIS OFFICE AT (919) 791–4200.

CJS Conveyance, PLLC
320 S. ACADEMY ST
CARY, NC 27511
NC LICENSE #P–1611 WWW.CJSCONVEYANCE.COM

ORANGE WATER AND SEWER AUTHORITY
CARRBORO, NORTH CAROLINA

OAKWOOD DRIVE & DOUGLAS ROAD
WATER MAIN REPLACEMENT

EROSION & SEDIMENT CONTROL NOTES

CJS PROJ. #:	001–002
DATE:	5–4–2021
SCALE:	SCALE
PROJECT ENGINEER:	SDL
DESIGNED BY:	JGB
DRAWN BY:	JGB
CHECKED BY:	JAR

EC1

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

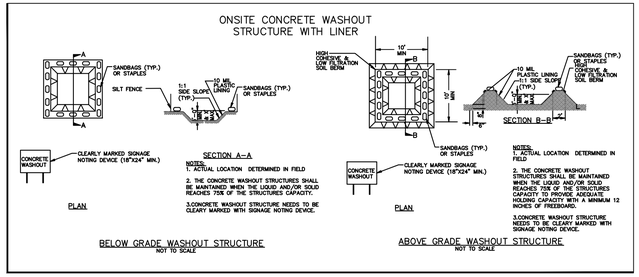
1. Do not dump paint and other liquid waste into storm drains, streams or wetlands.
2. Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
3. Contain liquid wastes in a controlled area.
4. Containment must be labeled, 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.



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.

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.

NCG01 GROUND STABILIZATION AND MATERIALS HANDLING

EFFECTIVE: 04/01/19

No.	REVISIONS	DATE	BY

SEAL: NORTH CAROLINA PROFESSIONAL SEAL 029995 ENGINEER STEPHEN D. LETCH

CJS Conveyance, PLLC
320 S. ACADEMY ST
CARY, NC 27511
NC LICENSE #P-1611 WWW.CJSCONVEYANCE.COM

ORANGE WATER AND SEWER AUTHORITY
CARRBORO, NORTH CAROLINA

OAKWOOD DRIVE & DOUGLAS ROAD
WATER MAIN REPLACEMENT

EROSION & SEDIMENTATION CONTROL NOTES

CJS PROJ. #:	001-002
DATE:	5-4-2021
SCALE:	SCALE
PROJECT ENGINEER:	SDL
DESIGNED BY:	JGB
DRAWN BY:	JGB
CHECKED BY:	JAR

EC2

SHEET NUMBER 14 OF 16

Plotted By:Abigail Miller Layout:14 EROSION & SEDIMENT CONTROL NOTES June 18, 2021 11:30:42am O:\001 OWASA\002 High Priority Water Mains\80 - Drawings\Plan Sheets\Rogerson_Oakwood\Oakwood & Douglas (The L)\14 EROSION & SEDIMENT CONTROL NOTES.dwg

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 un-attended 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

No.	REVISIONS	DATE	BY

SEAL: NORTH CAROLINA PROFESSIONAL SEAL 029995 ENGINEER STEPHEN D LETCH

CJS Conveyance, PLLC
320 S. ACADEMY ST
CARY, NC 27511
NC LICENSE #P-1611 WWW.CJSCONVEYANCE.COM

ORANGE WATER AND SEWER AUTHORITY
CARRBORO, NORTH CAROLINA

OAKWOOD DRIVE & DOUGLAS ROAD
WATER MAIN REPLACEMENT

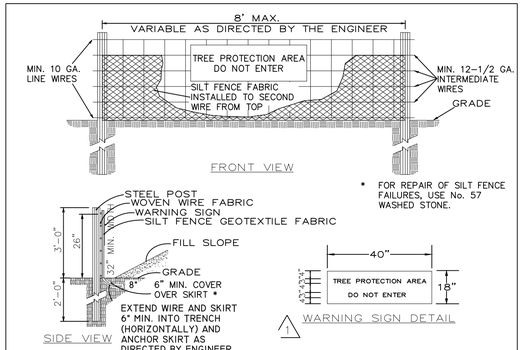
EROSION & SEDIMENTATION CONTROL NOTES

CJS PROJ. #:	001-002
DATE:	5-4-2021
SCALE:	SCALE
PROJECT ENGINEER:	SDL
DESIGNED BY:	JGB
DRAWN BY:	JGB
CHECKED BY:	JAR

EC3

SHEET NUMBER 15 OF 16

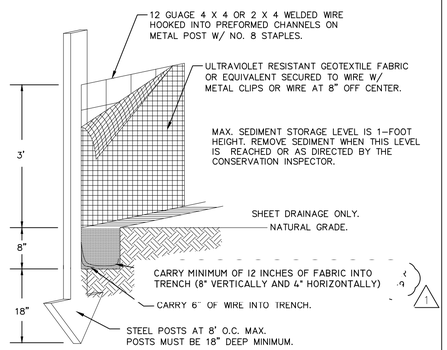
Plotted By:Abigail Miller Layout:15 EROSION & SEDIMENT CONTROL NOTES June 18, 2021 11:31:02am O:\001 OWASA\002 High Priority Water Mains\80 - Drawings\Plan Sheets\Rogerson_Oakwood\Oakwood & Douglas (The L)\15 EROSION & SEDIMENT CONTROL NOTES.dwg



NOTES:
1. THE SKIRT IS TO BE TRENCHED IN, AT A MINIMUM, 8 INCHES VERTICALLY AND 4 INCHES HORIZONTALLY
2. WARNING SIGNS TO BE MADE OF DURABLE, WEATHERPROOF MATERIAL.
3. LETTERS TO BE 3" HIGH MINIMUM, CLEARLY LEGIBLE AND SPACED AS DETAILED.
4. SIGNS SHALL BE PLACED AT 50' MAXIMUM INTERVALS.
5. PLACE A SIGN AT EACH END OF LINEAR TREE PROTECTION AND 50' ON CENTER THEREAFTER.
6. FOR TREE PROTECTION AREAS LESS THAN 200' IN PERIMETER, PROVIDE NO LESS THAN ONE SIGN PER PROTECTION AREA.
7. ATTACH SIGNS SECURELY TO FENCE POSTS AND FABRIC.
8. MAINTAIN TREE PROTECTION FENCE THROUGHOUT DURATION OF PROJECT.
9. ADDITIONAL SIGNS MAY BE REQUIRED BY INSPECTIONS DEPARTMENT BASED ON ACTUAL FIELD CONDITIONS.
10. PLACE A SIGN AT EACH END OF LINEAR TREE PROTECTION AND 50' ON CENTER THEREAFTER.
11. FOR CONDITIONS WHERE PRACTICE APPLIES; PLANNING CONSIDERATIONS (HOWEVER FLOW SHALL NOT RUN PARALLEL WITH THE FENCE) AND DESIGN CRITERIA.
12. END OF SILT FENCE NEEDS TO BE TURNED UPHILL.
13. SEE N.C. STATE DENR PRACTICE & SPECIFICATION SEDIMENTS FENCE SECTION. FOR CONDITIONS WHERE PRACTICE APPLIES; PLANNING CONSIDERATIONS.
14. SEE N.C. STATE DENR PRACTICE & SPECIFICATION SEDIMENTS FENCE SECTION. (HOWEVER FLOW SHALL NOT RUN PARALLEL WITH THE FENCE)

MAINTENANCE NOTES:
1. FILTER BARRIERS SHALL BE INSPECTED AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL ANY REPAIRS NEEDED SHALL BE MADE IMMEDIATELY.
2. SHOULD THE FABRIC DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER STILL IS NECESSARY, THE FABRIC SHALL BE REPALCED PROMPTLY.
3. SEDIMENT DEPOSITS SHOULD BE REMOVED WHEN THE DEPOSITS REACH 1-FOOT IN HEIGHT OF THE BARRIER. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE IS REMOVED SHALL BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED AND SEEDED.

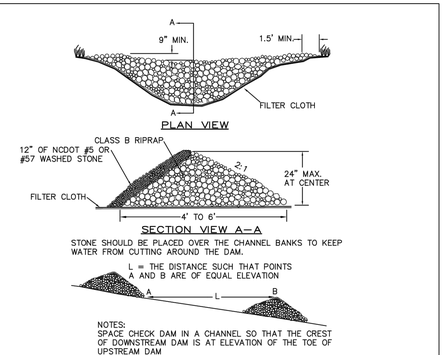
TEMPORARY SILT/TREE PROTECTION FENCE
N.T.S



NOTES:
1. SILT FENCES SHOULD NOT BE USED AT PIPE OUTLETS OR IN AREAS OF CONCENTRATED FLOWS (CREEKS, DITCHLINES, SWALES, ETC.)
2. PREFABRICATED SILT FENCE IS NOT ACCEPTABLE.

MAINTENANCE NOTES:
1. FILTER BARRIERS SHALL BE INSPECTED AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL ANY REPAIRS NEEDED SHALL BE MADE IMMEDIATELY.
2. SHOULD THE FABRIC DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER STILL IS NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY.
3. SEDIMENT DEPOSITS SHOULD BE REMOVED WHEN THE DEPOSITS REACH 1-FOOT IN HEIGHT OF THE BARRIER. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE IS REMOVED SHALL BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED AND SEEDED.

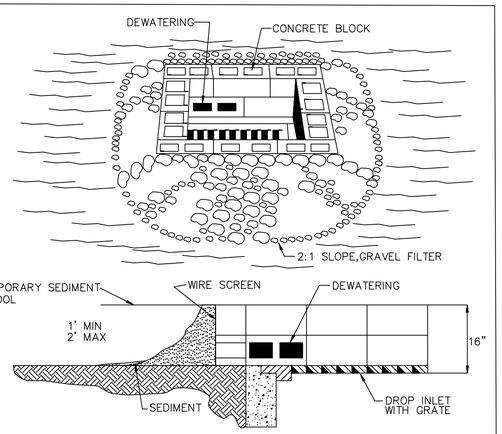
TEMPORARY SILT FENCE
N.T.S



CONSTRUCTION SPECIFICATIONS:
1. PLACE STONE TO THE LINES AND DIMENSIONS SHOWN IN THE PLAN ON A FILTER FABRIC FOUNDATION.
2. KEEP THE CENTER STONE SECTION AT LEAST 9 INCHES BELOW NATURAL GROUND LEVEL WHERE THE DAM ABUTS THE CHANNEL BANKS.
3. EXTEND STONE AT LEAST 1.5 FEET BEYOND THE DITCH BANK TO KEEP WATER FROM CUTTING AROUND THE ENDS OF THE CHECK DAM.
4. SET SPACING BETWEEN DAMS TO ASSURE THAT THE ELEVATION AT THE TOP OF THE LOWER DAM IS THE SAME AS THE TOE ELEVATION OF THE UPPER DAM.
5. PROTECT THE CHANNEL AFTER THE LOWEST CHECK DAM FROM HEAVY FLOW THAT COULD CAUSE EROSION.
6. MAKE SURE THAT THE CHANNEL REACH ABOVE THE MOST UPSTREAM DAM IS STABLE.
7. ENSURE THAT OTHER AREAS OF THE CHANNEL, SUCH AS CULVERT ENTRANCES BELOW THE CHECK DAMS, ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONES.

STONE CHECK DAM MAINTENANCE DETAILS:
1. INSPECT CHECK DAMS AND CHANNELS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1 INCH OR GREATER) RAINFALL EVENT AND REPAIR IMMEDIATELY. CLEAN OUT SEDIMENT, STRAW, LIMBS, OR OTHER DEBRIS THAT COULD CLOG THE CHANNEL WHEN NEEDED.
2. ANTICIPATE SUBMERGENCE AND DEPOSITION ABOVE THE CHECK DAM AND EROSION FROM HIGH FLOWS AROUND THE EDGES OF THE DAM. CORRECT ALL DAMAGE IMMEDIATELY. IF SIGNIFICANT EROSION OCCURS BETWEEN DAMS, ADDITIONAL MEASURES CAN BE TAKEN SUCH AS, INSTALLING A PROTECTIVE RIPRAP LINER IN THAT PORTION OF THE CHANNEL (PRACTICE 6.31, RIPRAP-LINE AND PAVED CHANNELS)
3. REMOVE SEDIMENT ACCUMULATED BEHIND THE DAMS AS NEEDED TO PREVENT DAMAGE TO CHANNEL VEGETATION, ALLOW THE CHANNEL TO DRAIN THROUGH THE STONE CHECK DAM, AND PREVENT LARGE FLOWS FROM CARRYING SEDIMENT OVER THE DAM. ADD STONES TO DAMS AS NEEDED TO MAINTAIN DESIGN HEIGHT AND CROSS SECTION.

STONE CHECK DAM
N.T.S



CONSTRUCTION SPECIFICATIONS

1. LAY ONE BLOCK ON EACH SIDE OF THE STRUCTURE ON ITS SIDE IN THE BOTTOM ROW TO ALLOW POOL DRAINAGE. THE FOUNDATION SHOULD BE EXCAVATED AT LEAST 2" BELOW THE CREST OF THE STORM DRAIN. PLACE THE BOTTOM ROW OF BLOCKS AGAINST THE EDGE OF THE STORM DRAIN FOR LATERAL SUPPORT AND TO AVOID WASHOUTS WHEN OVERFLOW OCCURS. IF NEEDED, GIVE LATERAL SUPPORT TO SUBSEQUENT ROWS BY PLACING 2x4 WOOD STUDS THROUGH BLOCK OPENINGS.

2. CAREFULLY FIT HARDWARE CLOTH OR COMPARABLE WIRE MESH WITH 1/2-INCH OPENINGS OVER ALL BLOCK OPENINGS TO HOLD GRAVEL IN PLACE.

3. USE CLEAN GRAVEL, 3/4 TO 1/2-INCH IN DIAMETER, PLACED 2 INCHES BELOW THE TOP OF THE BLOCK ON A 2:1 SLOPE OR FLATTER AND SMOOTH IT TO AN EVEN GRADE. D.O.T #57 WASHED STONE IS RECOMMENDED.

DROP INLET PROTECTION
N.T.S

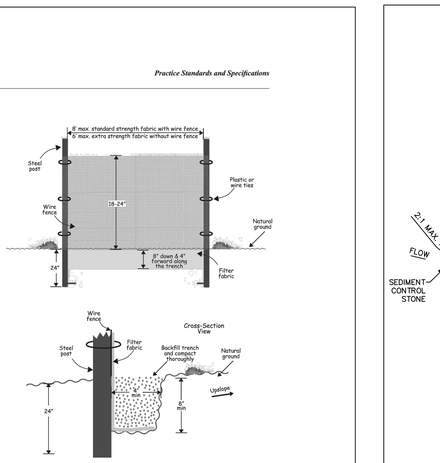
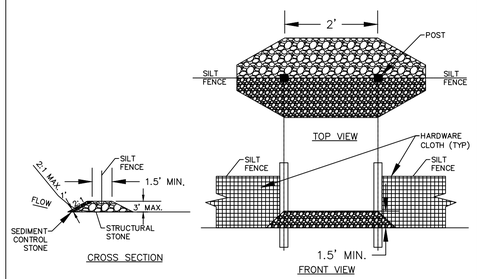


Figure 6.62a Installation detail of a sediment fence.

Rev. 5/13

6.62.5

SILT FENCE SKIRT ANCHOR DETAIL
N.T.S

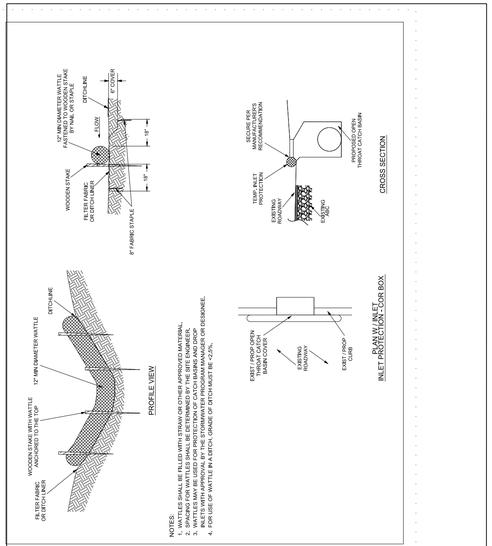


NOTES:

1. STRUCTURAL STONE SHALL BE CLASS B STONE FOR EROSION CONTROL PURPOSES.
2. SEDIMENT CONTROL STONE SHALL BE NO. 5 OF NO. 57 STONE.
3. PROVIDE STONE RELIEF ALONG PERIMETER SILT FENCE IN LOW LYING AREAS AND AT SHARP ANGLE CHANGES LESS THAN 90 DEGREES.
4. MAXIMUM SPACING OF OUTLETS TO BE 1000 FEET.
5. WATTLE IN HORSESHOE SHAPE CAN BE PLACED IN FRONT OF OUTLET TO REDUCE OUTLET MAINTENANCE.

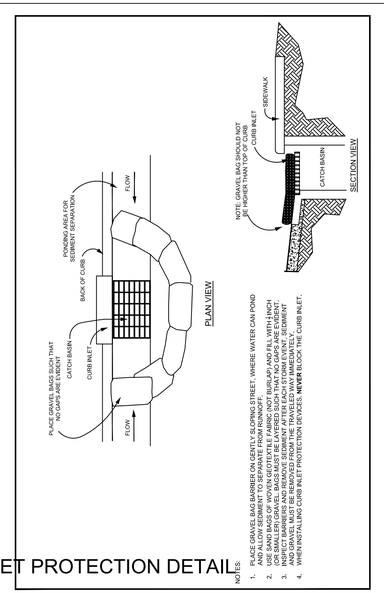
STONE RELIEF OUTLET DETAIL
N.T.S

STONE RELIEF OUTLET MAINTENANCE NOTES:
1. INSPECT OUTLET STRUCTURES WEEKLY AND AFTER SIGNIFICANT (1/2 INCH OR GREATER) RAINFALL EVENTS TO SEE IF ANY EROSION AROUND OR BELOW THE WATTLE HAS TAKEN PLACE, OR IF STONES HAVE BEEN DISLODGED. IMMEDIATELY MAKE ALL NEEDED REPAIRS TO PREVENT FURTHER DAMAGE.



WATTLE BARRIER DETAIL
N.T.S

WATTLE BARRIER MAINTENANCE NOTES:
1. INSPECT WATTLE BARRIERS WEEKLY AND AFTER EACH SIGNIFICANT RAINFALL EVENT (1/2 INCH OR GREATER). REMOVE ACCUMULATED SEDIMENT AND ANY DEBRIS.
2. THE WATTLE BARRIER MUST BE REPLACED IF CLOGGED OR TORN. IF PONDING BECOMES EXCESSIVE, THE WATTLE BARRIER MAY NEED TO BE REPLACED WITH A LARGER DIAMETER OR A DIFFERENT MEASURE. THE WATTLE BARRIER NEEDS TO BE REINSTALLED IF UNDERMINED OR DISLODGED.
3. THE WATTLE BARRIER SHALL BE INSPECTED UNTIL LAND DISTURBANCE IS COMPLETE AND THE AREA ABOVE THE MEASURE HAS BEEN PERMANENTLY STABILIZED.

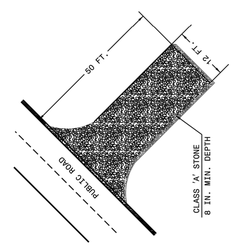


NOTES:
1. PLACE GRAVEL BAG BARRIER ON GENTLY SLOPING STREET, WHERE WATER CAN POND AND FLOW OVER BARRIER. DO NOT PLACE ON STEEP STREETS
2. USE SAND BAGS OF WOVEN GEOTEXTILE FABRIC (NOT BURLAP) AND FILL WITH 3 INCH (OR SMALLER) GRAVEL. BAGS MUST BE LAYERED SUCH THAT NO GAPS ARE EXISTENT.
3. REMOVE SEDIMENT DEPOSITS WHEN IT REACHES HALF FULL, TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE GRAVEL BAGS. TAKE CARE TO AVOID DAMAGING THE GRAVEL BAGS DURING CLEANOUT, AND REPLACE IF DAMAGED DURING CLEANOUT OPERATIONS. SEDIMENT DEPTH SHOULD NEVER EXCEED HALF THE DESIGNED STORAGE DEPTH.
4. AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED, REMOVE ALL GRAVEL BAGS AND MATERIALS AND UNSTABLE SEDIMENT DEPOSITS.

GRAVEL BAG CURB INLET PROTECTION MAINTENANCE DETAILS:
1. INSPECT BAFFLES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY. SHOULD THE FABRIC OF A BAG COLLAPSE, TEAR, DECOMPOSE, OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.
2. REMOVE SEDIMENT DEPOSITS WHEN IT REACHES HALF FULL, TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE GRAVEL BAGS. TAKE CARE TO AVOID DAMAGING THE GRAVEL BAGS DURING CLEANOUT, AND REPLACE IF DAMAGED DURING CLEANOUT OPERATIONS. SEDIMENT DEPTH SHOULD NEVER EXCEED HALF THE DESIGNED STORAGE DEPTH.
3. AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED, REMOVE ALL GRAVEL BAGS AND MATERIALS AND UNSTABLE SEDIMENT DEPOSITS.

INLET PROTECTION DETAIL
N.T.S

NOTES:
1. PROVIDE TURNING RADIUS SUFFICIENT TO ACCOMMODATE LARGE TRUCKS
2. MUST BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC ROADWAYS
3. PERIODIC TOPDRESSING WITH STONE WILL BE NECESSARY.
4. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC ROADWAYS MUST BE CLEANED UP IMMEDIATELY.
5. CONTROLS MUST BE PLACED ON THE ENTRANCE AT ALL POINTS OF INGRESS AND EGRESS UNTIL SITE IS STABILIZED. PROVIDE FREQUENT CHECKS OF THE DEVICE AND TIMELY MAINTENANCE.
6. ADDITIONAL CONTROL MEASURES MAY BE REQUIRED AS DETERMINED BY THE ENGINEER.
7. NO WASHING SHALL BE DONE ON OR OTHER COARSE AGGREGATE APPROVED BY THE ENGINEER.
8. INSTALL CONSTRUCTION ENTRANCES IN A WAY TO PREVENT VEHICLES FROM BYPASSING CONSTRUCTION ENTRANCE. PLACE GEOTEXTILE FOR DRAINAGE BENEATH STONE



NOTE: PLACE GEOTEXTILE FOR DRAINAGE BENEATH STONE

TEMPORARY CONSTRUCTION ENTRANCE DETAIL
N.T.S

TEMPORARY CONSTRUCTION ENTRANCE MAINTENANCE NOTES:
1. MAINTAIN THE GRAVEL PAD IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE CONSTRUCTION SITE. THIS MAY REQUIRE PERIODIC TOPDRESSING WITH 2-INCH STONE.
2. AFTER EACH RAINFALL, INSPECT ANY STRUCTURE USED TO TRAP SEDIMENT AND CLEAN IT OUT AS NECESSARY.
3. IMMEDIATELY REMOVE ALL OBJECTIONABLE MATERIALS SPILLED, WASHED, OR TRACKED ONTO PUBLIC ROADWAYS

No.	REVISIONS	DATE	BY

SEAL:

NORTH CAROLINA PROFESSIONAL SEAL 029995 ENGINEER STEPHEN D. LEITCH

CJS Conveyance, PLLC
320 S. ACADEMY ST
CARY, NC 27511
NC LICENSE #P-1611 WWW.CJSCONVEYANCE.COM

ORANGE WATER AND SEWER AUTHORITY
CARRBORO, NORTH CAROLINA

OAKWOOD DRIVE & DOUGLAS ROAD
WATER MAIN REPLACEMENT

EROSION & SEDIMENT CONTROL DETAILS

CJS PROJ. #:	001-002
DATE:	5-4-2021
SCALE:	SCALE
PROJECT ENGINEER:	SDL
DESIGNED BY:	JGB
DRAWN BY:	JGB
CHECKED BY:	JAR

EC4

SHEET NUMBER 16 OF 16

Plotted By: Abigail Miller Layout: 16 EROSION & SEDIMENT CONTROL DETAILS June 18, 2021 11:31:18am O:\001 OWASA\002 High Priority Water Mains\60 - Drawings\Plan Sheets\Rogerson_Oakwood\Oakwood & Douglas (The L)\16 EROSION & SEDIMENT CONTROL DETAILS.dwg