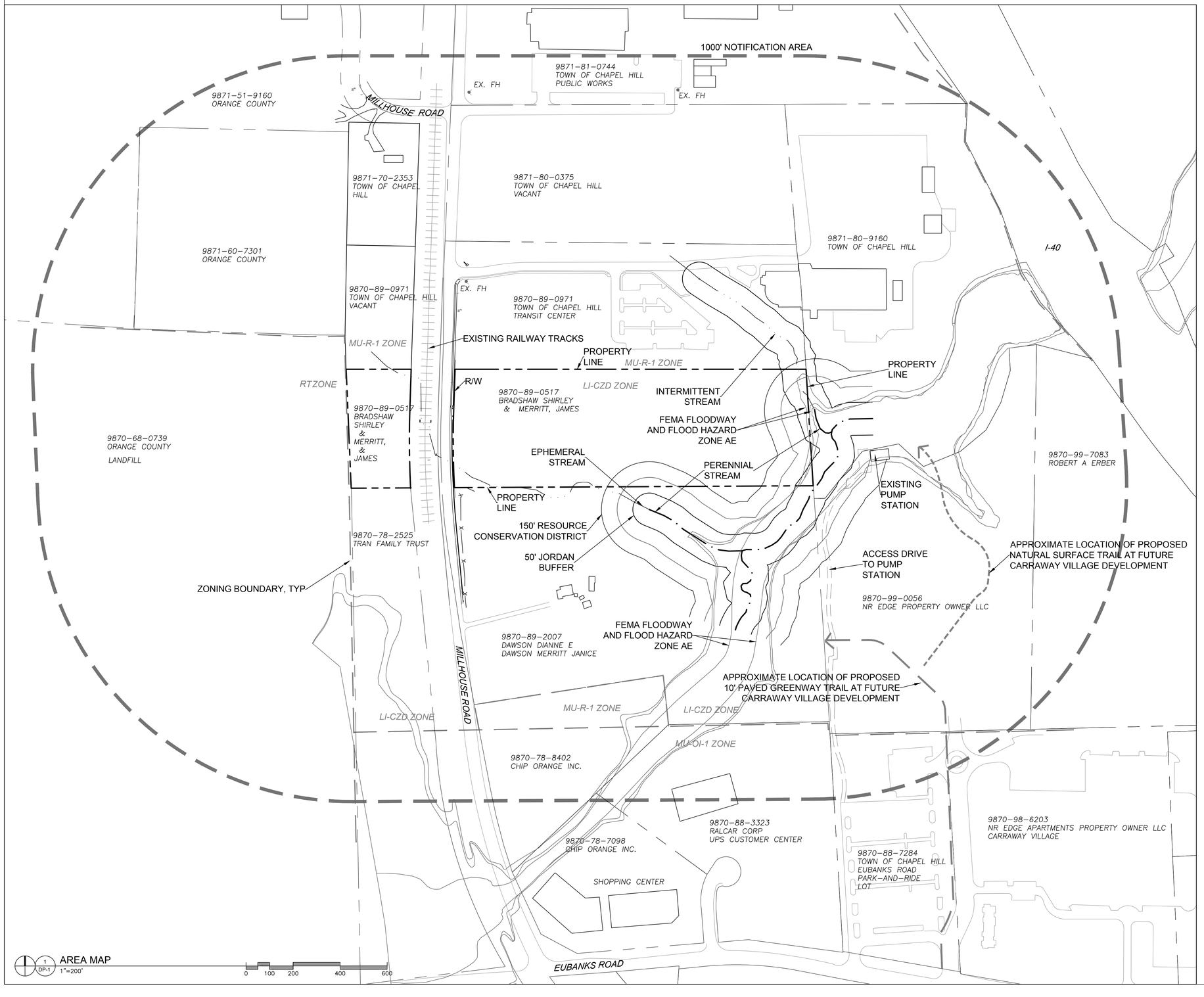
CAROLINA DONOR SERVICES

7000 MILLHOUSE ROAD, CHAPEL HILL, NC 27517

ZONING COMPLIANCE PERMIT



AREA MAP
1"=200'

SITE DATA

PIN:	9870-89-0517
OWNER:	CAROLINA FLEX PARK
CONTRACT PURCHASER:	CAROLINA DONOR SERVICES FOR LAND EAST OF MILLHOUSE ROAD
ENVIRONMENTAL CONSTRAINTS:	JORDAN BUFFER RESOURCE CONSERVATION DISTRICT FEMA FLOODWAY AND FLOOD HAZARD ZONE AE
LAND AREA: (EAST SIDE OF MILLHOUSE)	425,229 SF / 9.76 AC
GROSS LAND AREA:	436,566 SF / 10.02 AC
EXISTING ZONING:	LI-CZD

PROPOSED USE

EXISTING BUILDING:	OFFICE
PROPOSED BUILDING:	33,785 SF OFFICE 17,496 SF CLINIC + 5,137 SF STORAGE / GARAGE 56,418 SF

FLOOR AREA RATIO

DISTRICT AREA FAR: NA 375,945 SF IN THIS AREA
RCD STREAMSIDE: 0.01 X 14,200 SF IN THIS AREA = 142 SF ALLOWED
RCD MANAGED: 0.019 X 13,348 SF IN THIS AREA = 253 SF
RCD UPLAND: NA 33,073 SF IN THIS AREA

PARKING

REQUIRED:	33,785 SF OFFICE – 112 MIN / 168 MAX 17,496 SF CLINIC – 78 MIN / 87 MAX 5,137 SF STORAGE – 2 MIN / 3 MAX TOTAL 192 MIN, 258 MAX
PROVIDED:	118 STANDARD SPACES + 5 ADA SPACES 123 SPACES TOTAL

BICYCLE PARKING

REQUIRED:	33,785 SF OFFICE – 17 SPACES 17,496 SF CLINIC – 14 SPACES 5,137 SF STORAGE – 4 SPACES TOTAL: 35 SPACES
PROVIDED:	16 SPACES (8 RACKS) OUTSIDE 19 SPACES IN SECURED GARAGE INTERIOR

LIST OF SHEETS

CD-0	COVER & AREA MAP
CD-1.0	EXISTING CONDITIONS & SITE ANALYSIS
CD-2.0	SITE LAYOUT PLAN
CD-3.0	GRADING AND STORMWATER PLAN
CD-4.0	reserved for EROSION CONTROL PLAN
CD-4.1	reserved for EROSION CONTROL DETAILS
CD-5.0	UTILITY PLAN
CD-5.1	WATER MAIN PROFILE
CD-5.2	SANITARY SEWER MAIN PROFILE
CD-6.0	SITE LIGHTING PLAN
CD-7.0	LANDSCAPE PLAN
CD-8.0	SITE DETAILS
CD-8.1	SITE DETAILS
CD-8.2	WATER DETAILS
CD-8.3	WATER DETAILS
CD-8.4	SANITARY SEWER DETAILS
CD-8.5	SANITARY SEWER DETAILS
CD-9.0	WET POND DETAILS
CD-9.1	WET POND DETAILS

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NC BOARD OF EXAMINERS FOR ENGINEERS AND SURVEYORS LIC# C-1209

NC BOARD OF LANDSCAPE ARCHITECTS LIC#C-104

NORTH CAROLINA PROFESSIONAL SEAL 1302 LANDSCAPE ARCHITECT WENDI L. RAMSDEN

10·14·2019

Project

CAROLINA DONOR SERVICES
7000 MILLHOUSE ROAD
CHAPEL HILL, NC 27517

Job Number 1652

Drawn	MTC, WLR
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Revisions	

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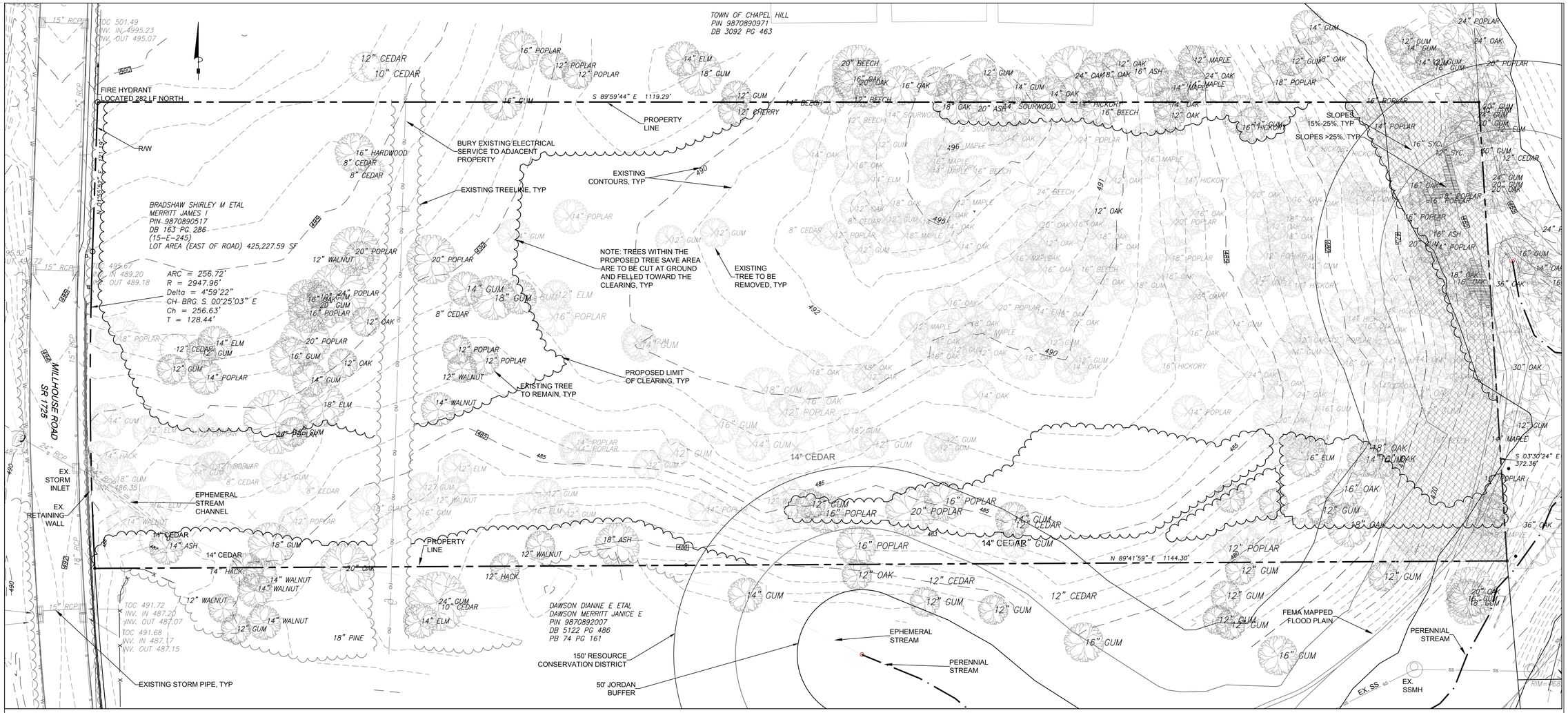
Sheet Title

COVER & AREA MAP

Sheet Number

CD-0.0



1 CD-1.0 EXISTING CONDITIONS
1"=40'
0 20 40 80 120

LOT AREA = 425,229 SF

SLOPES > 25% = 1,021 SF / 0.24% OF SITE

SLOPES 15-25% = 24,044 SF / 5.65% OF SITE

SLOPES < 15% = 400,164 SF / 94.11% OF SITE

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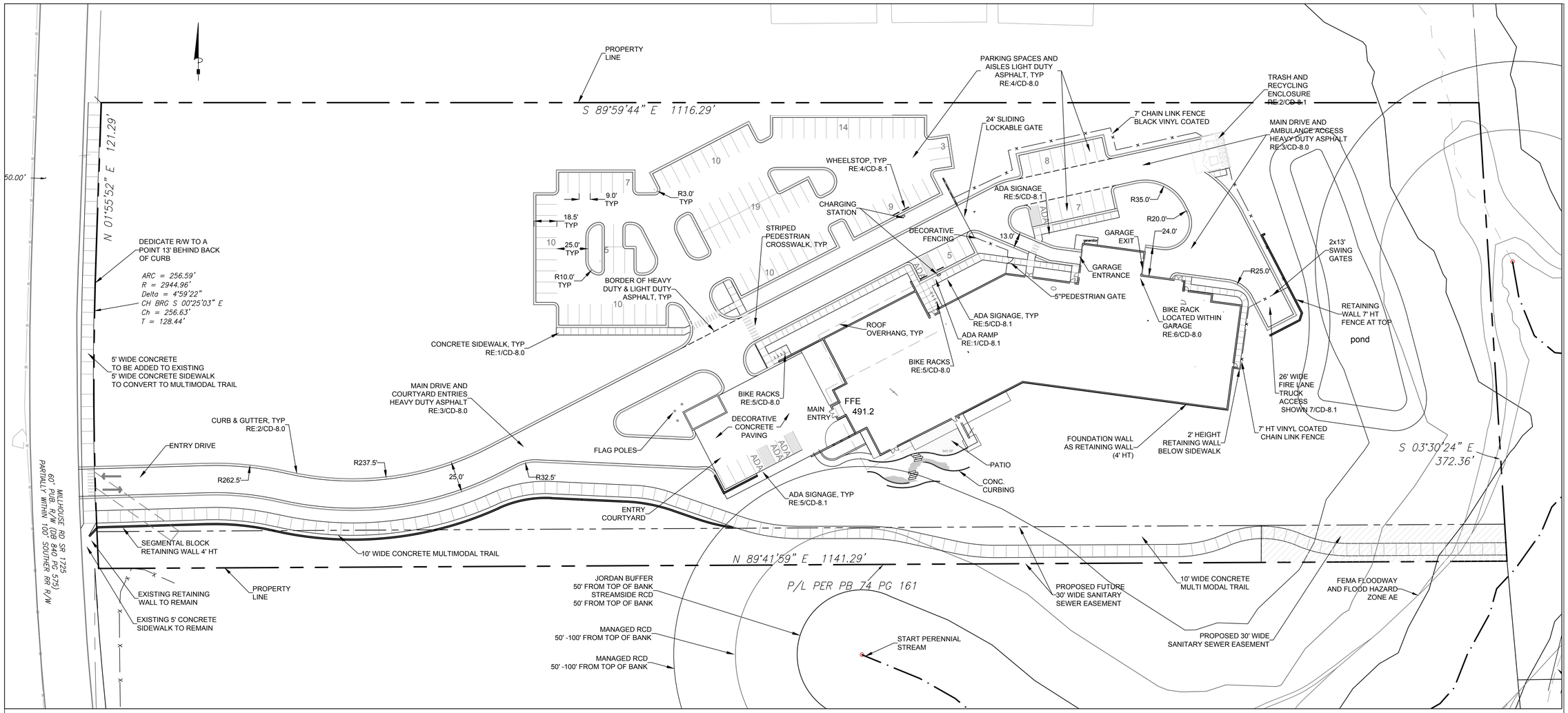
EXISTING CONDITIONS PLAN

Sheet Number

CD-1.0



1 CD-2.0 SITE LAYOUT PLAN

SCALE: 1"=40'

0 20 40 80 120

SITE LAYOUT NOTES

1. ALL ANGLES ARE 90 DEGREES UNLESS OTHERWISE NOTED.
2. DIMENSIONS TO BUILDING WALL ARE TO FACE OF WALL AT FINISH GRADE. DIMENSIONS TO CURB ARE TO FACE OF CURB.
3. LAY OUT IMPROVEMENTS FOR THE CIVIL ENGINEER'S OR LANDSCAPE ARCHITECT'S REVIEW PRIOR TO BEGINNING CONSTRUCTION.
4. REFERENCE ARCHITECTURAL DRAWINGS FOR BUILDING LAYOUT INFORMATION.
5. ADA PARKING SPACES SHALL BE SIGNED WITH TYPE R7-8 OR R7-8A RESERVED PARKING SIGN AND R7-8D MAXIMUM FINE SIGN PER GS 20-37.6 OF THE NORTH CAROLINA HANDICAP CODE. ADA RAMPS SHALL HAVE RAMP SURFACES COVERED WITH DETECTABLE WARNING PATTERN PER ADA STANDARDS.
6. REFERENCE EXISTING CONDITION SHEET C101 FOR EXTENT OF DEMOLITION AND REMOVAL OF CURB AND GUTTER, DRIVEWAYS, PAVEMENT, BOLLARDS, WALKWAYS, UTILITIES, AND VEGETATION.
7. BY ORANGE COUNTY ORDINANCE, CLEAN WOOD WASTE, SCRAP METAL AND CORRUGATED CARDBOARD, ALL PRESENT IN CONSTRUCTION WASTE, MUST BE RECYCLED.
8. BY ORANGE COUNTY ORDINANCE, ALL HAULERS OF CONSTRUCTION WASTE MUST BE PROPERLY LICENSED.
9. PRIOR TO ANY DEMOLITION OR CONSTRUCTION ACTIVITY ON THE SITE THE APPLICANT WILL HOLD A PRE-DEMOLITION/PRE-CONSTRUCTION CONFERENCE WITH THE COUNTY'S SOLID WASTE STAFF. THIS MAY BE THE SAME MEETING HELD WITH OTHER DEVELOPMENT OFFICIALS.
10. THE PRESENCE OF ANY ASBESTOS CONTAINING MATERIAL ('ACM') OR OTHER HAZARDOUS MATERIALS IN CONSTRUCTION AND DEMOLITION WASTE SHALL BE HANDLED IN ACCORDANCE WITH ANY AND ALL LOCAL, STATE, AND FEDERAL REGULATIONS AND GUIDELINES.
11. MASONRY WALLS WILL NOT BE REPAIRED BY THE TOWN RESULTING FROM MAINTENANCE ON TOWN OF CHAPEL HILL AND OWASA MAINTAINED UTILITIES.
12. THERE WILL BE TWO CLASS 1 BIKE RACKS LOCATED INSIDE THE BUILDING.
13. KEY BOXES FOR FIRST RESPONDERS WILL BE REQUIRED NEAR THE FRONT DOOR AND SPRINKLER RISER ROOM AREAS. 2012 NC FIRE CODE, SECTION 506.
14. MECHANICAL EQUIPMENT MUST BE PLACED AT OR ABOVE BASE FLOOD ELEVATION + 2 FEET.
15. PRIOR TO PERFORMING WORK IN THE NCDOT R/W, THE APPLICANT WILL NEED TO OBTAIN THE FOLLOWING:
    (1) APPROVED NCDOT DRIVEWAY PERMITS FOR PROPOSED ACCESSES TO NC 86.
    (2) APPROVED NCDOT THREE-PARTY ENCROACHMENT AGREEMENT WITH TOCH FOR PROPOSED / STIPULATED SIDEWALK AND APPURTENANCES.
    (3) APPROVED NCDOT THREE-PARTY ENCROACHMENT AGREEMENT WITH OWASA FOR PROPOSED WATER AND SEWER CONNECTIONS.
16. PRIOR TO ISSUANCE OF THE DRIVEWAY PERMITS AND ENCROACHMENT AGREEMENTS, THE APPLICANT WILL NEED TO PROVIDE COMPLETE AND DETAILED DESIGN PLANS PER NCDOT, TOCH, AND OWASA REQUIREMENTS FOR REVIEW AND APPROVAL.

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SITE LAYOUT PLAN

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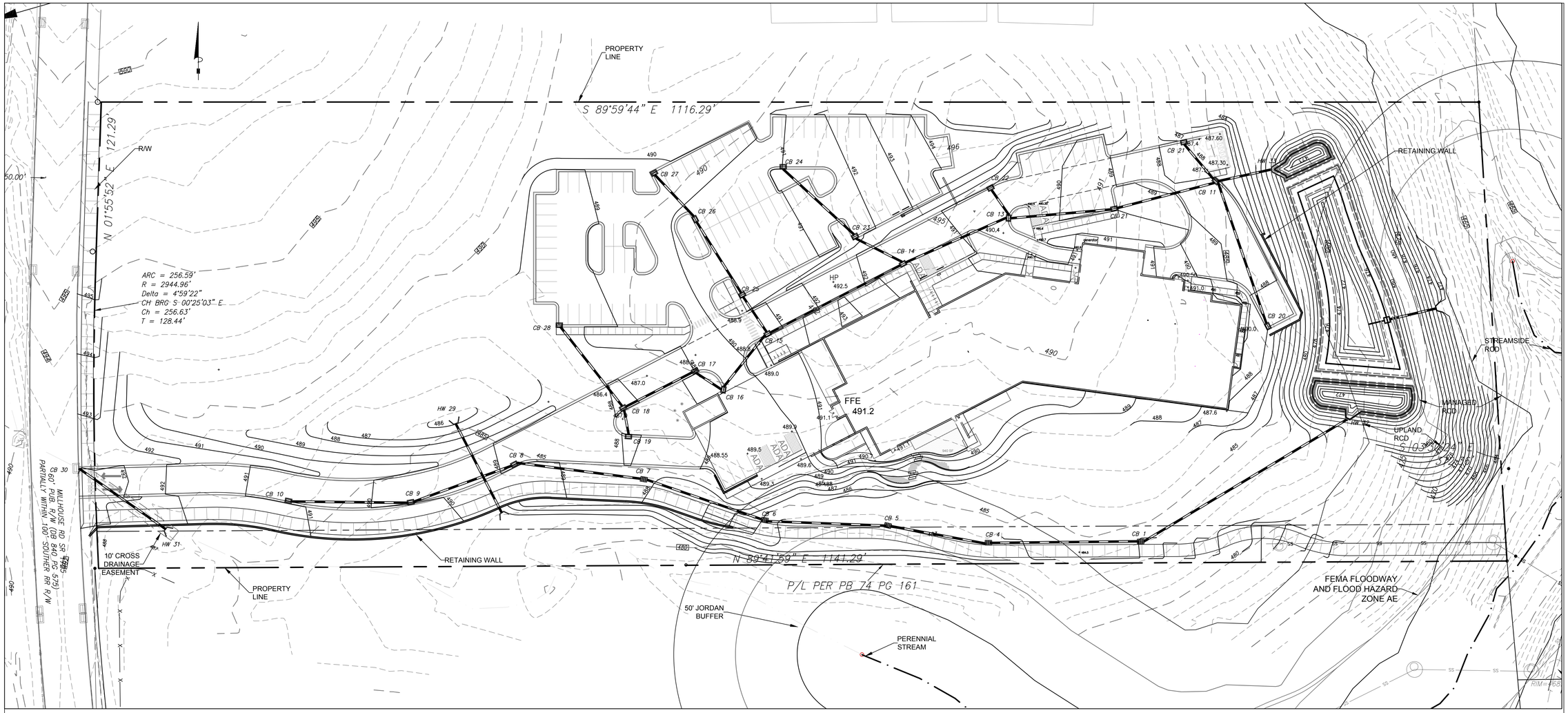
CD-2.0



1 CD-3.0 GRADING AND STORMWATER PLAN 1"=40'

0 20 40 80 120

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10/14/19

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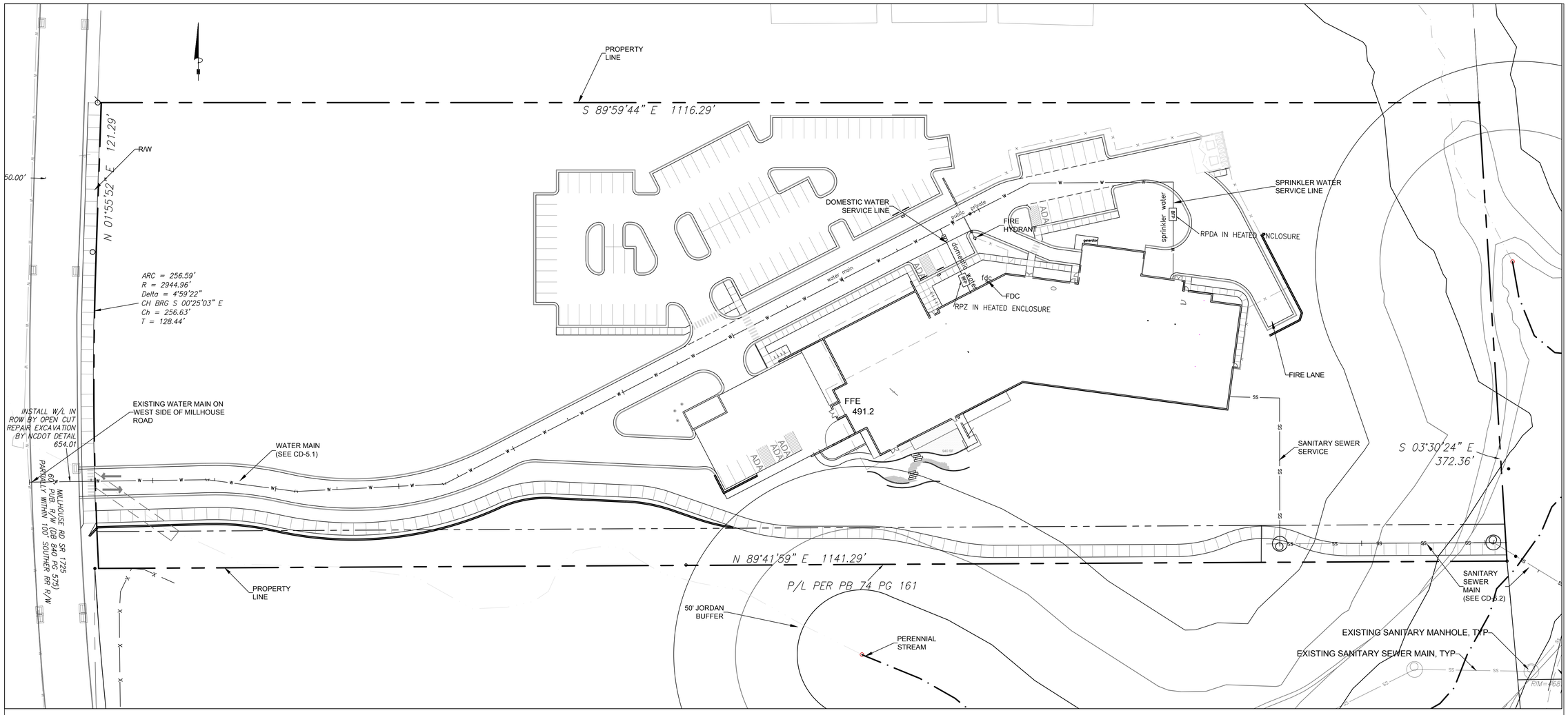
GRADING AND STORMWATER PLAN

Sheet Number

CD-3.0



1 CD-5.0 UTILITY LAYOUT PLAN

1"=40'

0 20 40 80 120

PIPE SEGMENT	UPSTREAM RIM	INVERT DOWN.	INVERT UPSTRM	LENGTH (FT)	DIA. (IN.)	SLOPE (%)	PIPE MATERIAL	O-RING/ GASKETT
HW33 TO CB1	484.00	476.00	478.28	190	15	1.20%	CONC	YES
CB1 TO CB4	483.50	478.28	479.30	85	15	1.20%	CONC	
CB4 TO CB5	483.50	479.30	480.07	64	15	1.20%	CONC	
CB5 TO CB6	485.00	480.07	481.63	130	15	1.20%	CONC	
CB6 TO CB7	488.10	481.63	482.75	93	15	1.20%	CONC	
CB7 TO CB8	488.80	482.75	483.96	101	15	1.20%	CONC	
CB8 TO CB9	489.60	483.96	484.98	85	15	1.20%	CONC	
CB9 TO CB10	490.50	484.98	486.12	95	15	1.20%	CONC	
HW30 TO HW29	486.00	482.00	486.00	85	24	4.71%	CONC	
HW32 TO CB31	492.00	487.00	488.02	85	24	1.20%	CONC	
HW34 TO CB11	488.00	477.00	477.66	55	24	1.20%	CONC	YES
CB11 TO CB12	489.40	477.66	478.63	81	24	1.20%	CONC	
CB12 TO CB13	490.40	478.63	479.61	82	24	1.20%	CONC	
CB13 TO CB14	491.50	479.61	480.68	89	24	1.20%	CONC	
CB14 TO CB15	490.60	480.68	482.12	120	24	1.20%	CONC	
CB15 TO CB16	489.50	482.12	482.76	53	18	1.21%	CONC	
CB16 TO CB17	488.00	483.01	483.30	24	18	1.21%	CONC	
CB17 TO CB18	487.80	483.05	483.78	61	18	1.20%	CONC	
CB18 TO CB19	487.90	483.78	484.03	21	18	1.19%	CONC	
CB11 TO CB20	487.80	478.20	483.00	120	18	4.00%	CONC	
CB11 TO CB 21	487.40	478.20	483.00	37	15	12.97%	CONC	
CB13 TO CB22	490.50	480.20	484.00	25	15	15.20%	DIP	
CB14 TO CB23	491.50	481.20	484.00	44	15	6.36%	DIP	
CB23 TO CB24	491.00	484.00	487.00	79	15	3.80%	DIP	
CB15 TO CB25	490.30	482.12	482.54	35	15	1.20%	CONC	
CB25 TO CB26	490.20	482.54	483.36	68	15	1.21%	CONC	
CB26 TO CB27	489.50	483.36	483.94	48	15	1.21%	CONC	
CB18 TO CB28	488.50	483.78	484.75	81	15	1.20%	CONC	

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UTILITY PLAN

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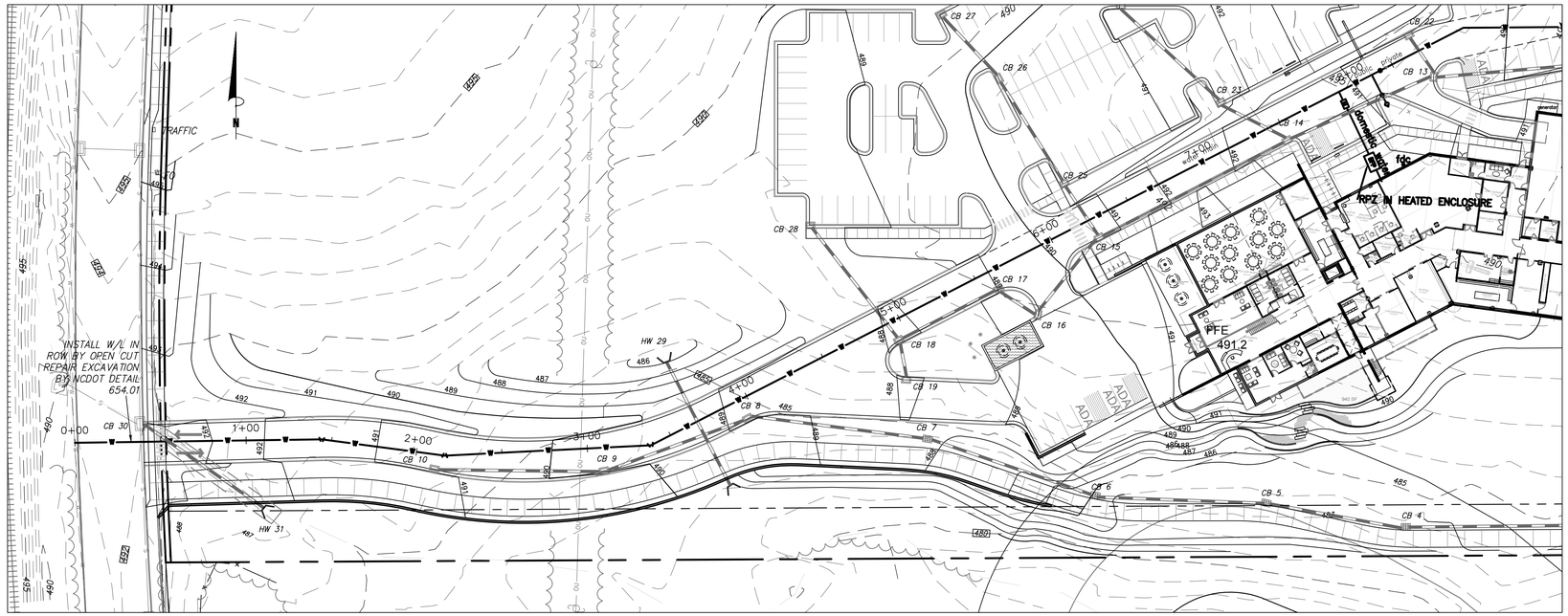
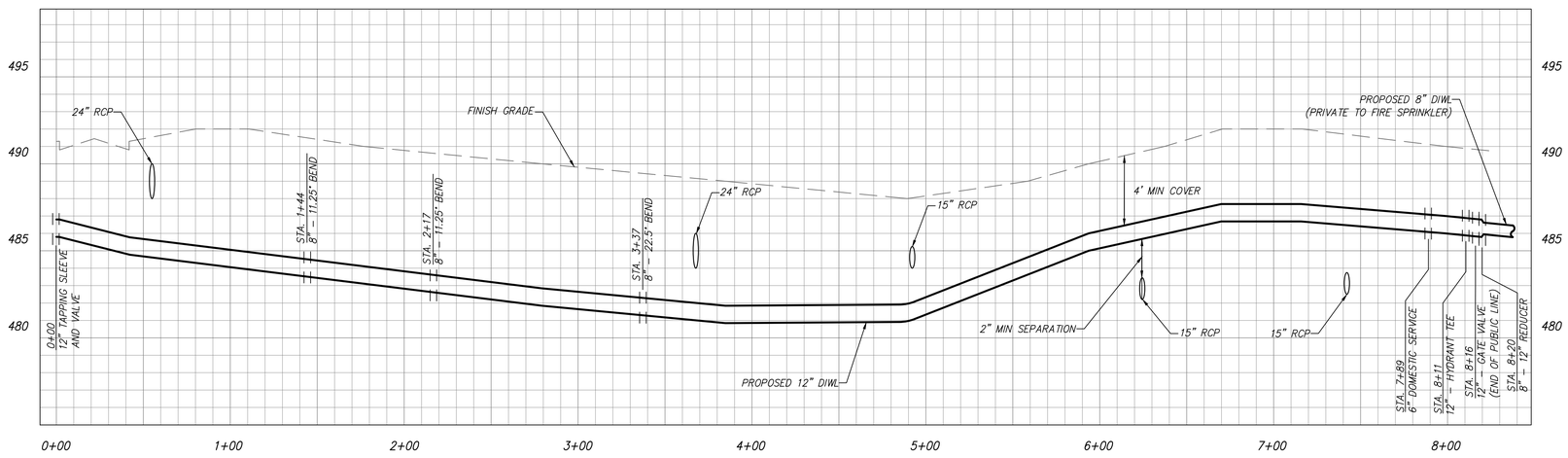
CD-5.0



8" WATER LINE

40 0 40 80 120

Scale 1" = 40' Horiz.
Scale 1" = 4' Vert.



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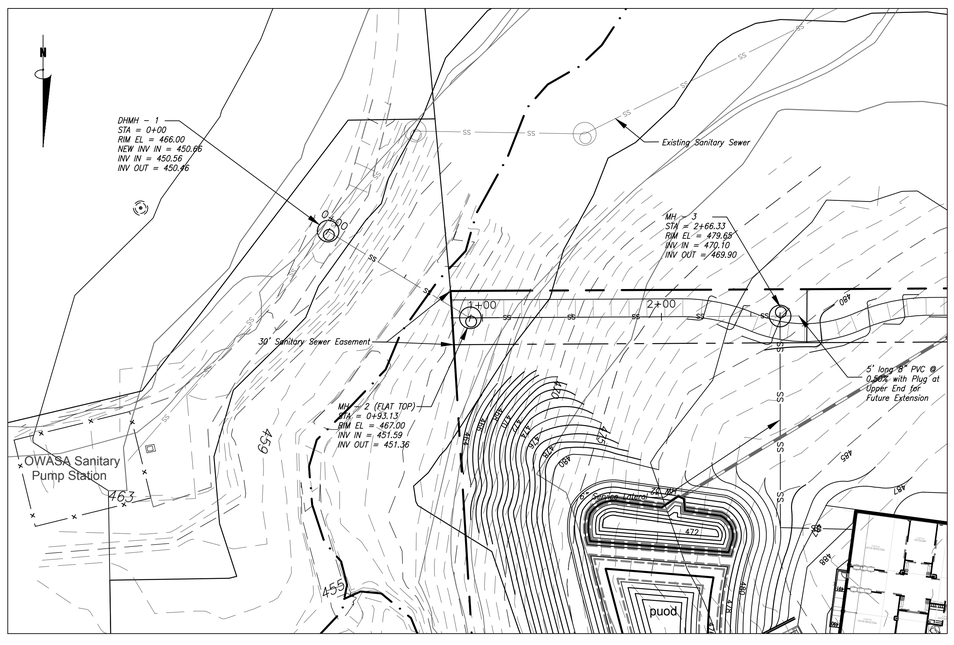
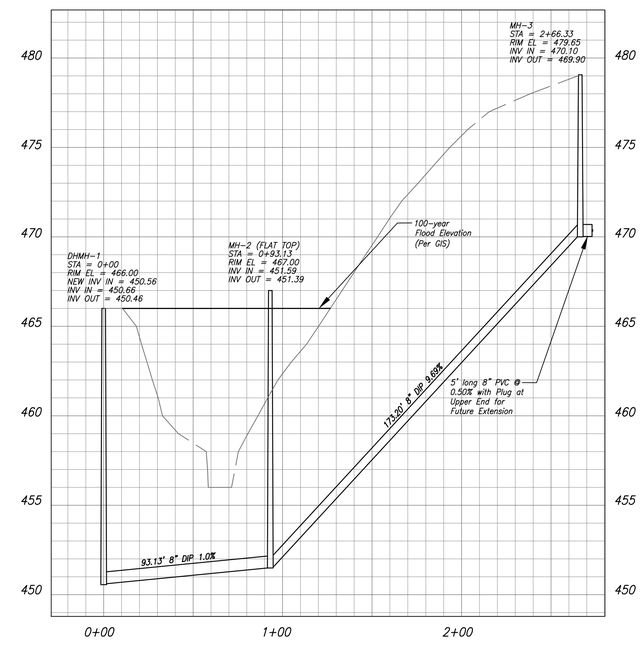
WATER MAIN PROFILE

Sheet Number

CD-5.1





8" SANITARY SEWER MAIN

40 0 40 80 120

Scale 1" = 40' Horiz.

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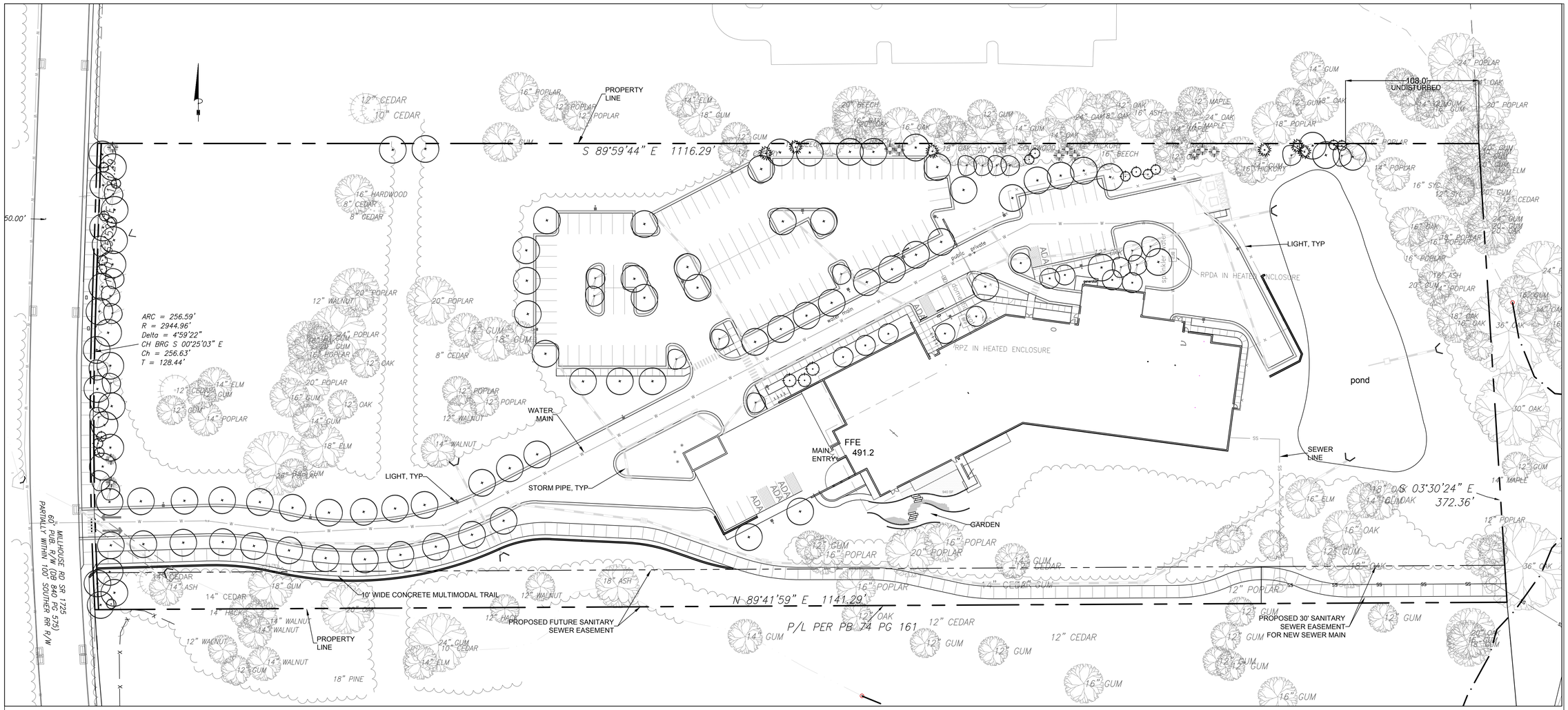
Sheet Title

SANITARY SEWER PLAN AND PROFILE

Sheet Number

CD-5.2



1 CD-6.0 LIGHTING PLAN

SCALE: 1"=40'

0 20 40 80 120

lighting notes

1. CONTRACTOR TO PROVIDE 2" SCH 40 PVC GRAY ELECTRICAL CONDUIT UNDER PAVEMENT, UNDER HEAVILY LANDSCAPED AREAS AND AS NECESSARY TO PROVIDE ACCESS TO ALL LIGHT FIXTURES/POLES AND CONNECT BACK TO ELECTRICAL TIE IN LOCATIONS.
2. CONTRACTOR TO COORDINATE LIGHT POLE AND CONDUIT LOCATIONS PRIOR TO PAVING.
3. ALL ELECTRICAL CONDUIT, LIGHT POLES AND FIXTURES SHALL BE FURNISHED BY THE CONTRACTOR.
4. ALL CONDUIT ENDS ARE TO BE CAPPED TO PREVENT ENTRY OF DEBRIS.
5. ALL CONDUITS MORE THAN 30' IN LENGTH SHALL HAVE A POLY STRING INSTALLED.
6. ALL JOINTS ARE TO BE SOLVENT WELDED.
7. LIGHTS MUST BE LOCATED AT LEAST 10' FROM EXISTING AND PROPOSED CANOPY TREES.

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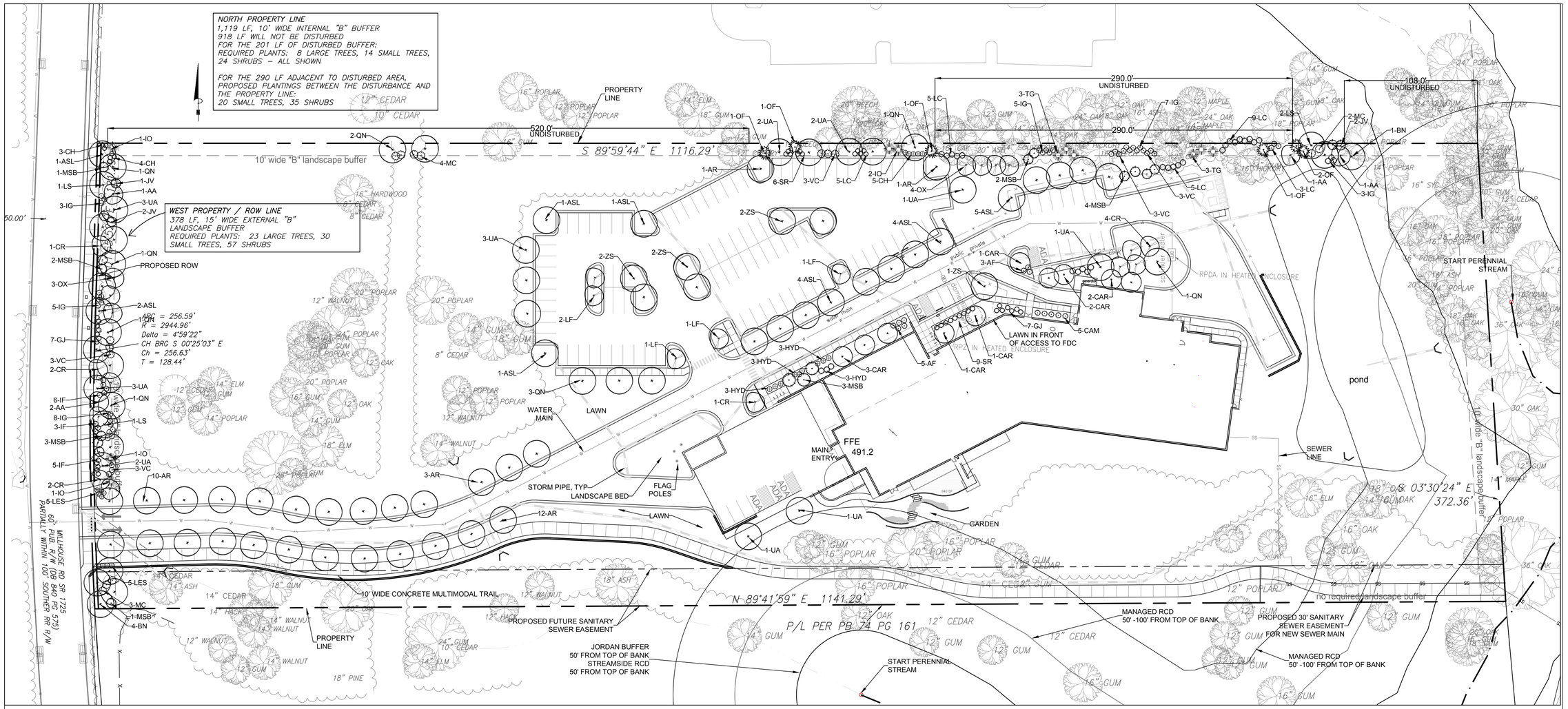


1 CD-7.0 LANDSCAPE PLAN

SCALE: 1"=40'

0 20 40 80 120

planting notes

1. LANDSCAPING MUST BE IN PLACE PRIOR TO REQUEST FOR A CERTIFICATE OF OCCUPANCY OR CERTIFICATE OF COMPLIANCE.
2. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, DEPTHS, QUANTITIES, DISTANCES, ANGLES AND SLOPES PRIOR TO ORDERING MATERIALS OR INSTALLING PROJECT.
3. SEPARATION OF LIGHT POLES AND CANOPY TREES MUST BE AT LEAST 10'.
4. IN AREAS OF GROUND COVER, MAINTAIN A 12" MINIMUM DISTANCE BETWEEN PLANTS AND HARD IMPROVEMENTS.
5. BED LINES SHALL CONFORM TO CONFIGURATION SHOWN ON THE PLANS. BED LINES SHALL MEET CURBS, WALKS, BUILDINGS, ETC. AT RIGHT ANGLES UNLESS SHOWN OTHERWISE.
6. CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE THEMSELF WITH ACTUAL CONDITIONS AND VERIFY EXISTING CONDITIONS IN THE FIELD. CONTRACTOR SHALL REPORT ALL DISCREPANCIES TO LANDSCAPE ARCHITECT.
7. CONTRACTOR SHALL ACCEPT ACTUAL CONDITIONS AT SITE AND PERFORM THE WORK SPECIFIED INCLUDING FINE GRADING AND INCORPORATION OF TOP SOIL INTO PLANTING AREAS, WITHOUT ADDITIONAL COMPENSATION FOR POSSIBLE VARIATION FROM GRADES AND CONDITIONS SHOWN, WHETHER SURFACE OR SUBSURFACE, EXCEPT AS PROVIDED FOR IN CONTRACT DOCUMENTS.
8. IN LAWN AREAS, 2" TOPSOIL SHALL BE TILLED INTO THE TOP 5" OF GROUND PRIOR TO SEEDING. THIS NEEDS TO BE TAKEN INTO ACCOUNT WHEN FINAL GRADING IS DONE. GRADES ARE NOT TO BE RAISED BY THIS 2" OF TOPSOIL BUT INCORPORATED IN SO THE FINAL GRADES MATCH DESIGN GRADING PLAN.
9. CONTRACTOR WILL OBTAIN WRITTEN APPROVAL FROM LANDSCAPE ARCHITECT FOR ANY PLANT SUBSTITUTIONS OF SPECIES, SIZE, OR TYPE OF CONTAINER.
10. CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION AND SHALL BE RESPONSIBLE FOR THE PROTECTION OF THESE UTILTIES DURING INSTALLATION, AND SHALL PROMPTLY REPAIR AND RESTORE SERVICES AT NO ADDITIONAL COST TO THE OWNER IF DAMAGE OCCURS DURING INSTALLATION. CONTRACTOR SHALL BECOME THOROUGHLY FAMILIAR WITH THE FULL SET OF CONSTRUCTION DRAWINGS AND SPECIFICATIONS FOR COORDINATION WITH UTILITIES, ARCHITECTURAL FEATURES, ETC.
11. CONTRACTOR WILL LEAVE DISTURBED AREAS LEVEL AND RAKED SMOOTH, REMOVING ALL ROCKS AND DEBRIS.
12. TREES AND SHRUBS ARE TO BE INSTALLED PER DETAILS 11 AND 12 ON SHEET C800. STAKING IS NOT REQUIRED ON THIS SITE. MULCH IS TO BE A 3" LAYER OF TRIPLE SHREDDED HARDWOOD MULCH. MULCH IS TO BE KEPT AWAY FROM TREE TRUNKS.
13. ANY DAMAGE TO EXISTING CONDITIONS OUTSIDE THE CONTRACT LIMITS, INCLUDING CURBS, SIDEWALKS, TURF AREAS AND PAVING, SHALL BE RESTORED TO ORIGINAL CONDITION BY THE CONTRACTOR WITHOUT EXTRA COST TO THE OWNER.
14. IN CASE OF DISCREPANCY BETWEEN THE QUANTITY OF PLANTS ON THE PLANS COMPARED TO THE PLANT LIST, THE CONTRACTOR SHALL SUPPLY QUANTITIES AS SHOWN ON THE PLANS.
15. ALL UNPAVED SURFACES ARE TO BE COVERED IN PLANTS, MULCH, OR GRASS.
16. PINE STRAW SHALL NOT BE USED AS MULCH OR GROUNDCOVER WITHIN TEN FEET OF ANY STRUCTURES CONSISTING OF EXTERIOR COMBUSTIBLE CONSTRUCTION.

2 CD-7.0 PLANT LIST

QTY	KEY	BOTANICAL NAME	COMMON NAME	MINIMUM SIZE*	SPACING	REMARKS
LARGE TREES						
27	AR	Acer rubrum 'October Glory'	October Glory Red Maple	2.5" caliper	AS SHOWN	FULL AND MATCHING
19	ASL	Acer saccharum 'Legacy'	Legacy Sugar Maple	2.5" caliper	AS SHOWN	FULL AND MATCHING
5	BN	Betula nigra	River Birch	2.5" caliper	AS SHOWN	MIN 3 STEM, FULL, MATCHING
10	CAR	Carpinus betulus 'Fastigiata'	Columnar Hornbeam	2.5" caliper	AS SHOWN	FULL AND MATCHING
4	LS	Liquidamber styraciflua	Sweetgum	2.5" caliper	AS SHOWN	FULL
11	QN	Quercus nuttalli	Nuttall Oak	2.5" caliper	AS SHOWN	FULL AND MATCHING
19	UA	Ulmus americana 'Princeton'	Princeton Elm	2.5" caliper	AS SHOWN	FULL AND MATCHING
7	ZS	Zelkova serrata 'Village Green'	Village Green Zelkova	2.5" caliper	AS SHOWN	FULL AND MATCHING
102	**large trees total**					
SMALL TREES						
5	AA	Amerlanchier arborea	Serviceberry	6' ht	AS SHOWN	FULL AND MATCHING
10	CR	Cercis reniformis 'Oklahoma'	Texas White Redbud	6' ht	AS SHOWN	FULL AND MATCHING
5	IO	Ilex opaca 'Green leaf'	Greenleaf American Holly	6' ht	AS SHOWN	FULL AND MATCHING
3	JV	Juniperus virginiana	Eastern Redcedar	8' ht	AS SHOWN	FULL AND MATCHING
5	LF	Lagerstroemia indica x Tuscarora	Tuscarora Crape Myrtle	6' ht	AS SHOWN	FULL AND MATCHING
2	MC	Myrica cerifera	Southern waxmyrtle	5' ht.	AS SHOWN	FULL AND MATCHING
16	MSB	Magnolia virginiana	Sweetbay Magnolia	8' ht	AS SHOWN	FULL AND MATCHING
6	OF	Osmanthus fortuneii	Fortune's Osmanthus	5' ht	AS SHOWN	FULL
7	OX	Oxydendron arboreum	Sourwood	6' ht.	AS SHOWN	FULL AND MATCHING
6	TG	Thuja plicata 'Green Giant'	Green Giant Arborvitae	6' ht	AS SHOWN	FULL AND MATCHING
65	**small trees total**					
SHRUBS						
8	AF	Rhododendron calendulacium	Flame Azalea	30" ht	AS SHOWN	FULL AND MATCHING
5	CAM	Camellia sasanqua	White Doves Camellia	36" ht	AS SHOWN	FULL AND MATCHING
12	CH	Cephalotaxus harringtonia	Plum Yew	18" ht	AS SHOWN	FULL AND MATCHING
14	GJ	Gardenia jasminoides 'Klein's Hardy'	August Beauty Gardenia	24" ht	AS SHOWN	FULL AND MATCHING
12	HYD	Hydrangea paniculata 'Limelight'	Limelight Hydrangea	24" ht	AS SHOWN	FULL AND MATCHING
23	IG	Ilex glabra	Inkberry Holly	30" ht	AS SHOWN	FULL AND MATCHING
14	IF	Illicium floridanum	Florida Anise	24" ht		FULL AND MATCHING
27	LC	Loropetalum chinensis 'Plum Delight'	Plum Delight Loropetalum	36" ht	4' O.C.	FULL AND MATCHING
10	LES	Loropetalum chinensis 'Emerald Snow'	Emerald Snow Loropetalum	18" ht	4' O.C.	FULL AND MATCHING
6	SR	Sarcococca ruscifolia	Sweetbox	18" ht	5' O.C.	FULL AND MATCHING
15	VC	Viburnum awabuki 'Chindo'	Chindo Viburnum	36" ht	6' O.C.	FULL AND MATCHING
146	shrubs total					
GROUNDCOVER/GRASSES						
AR	LAWN	3 VAR IMPROVED FESCUE		SEED		

3 CD-7.0 TREE COVERAGE SUMMARY

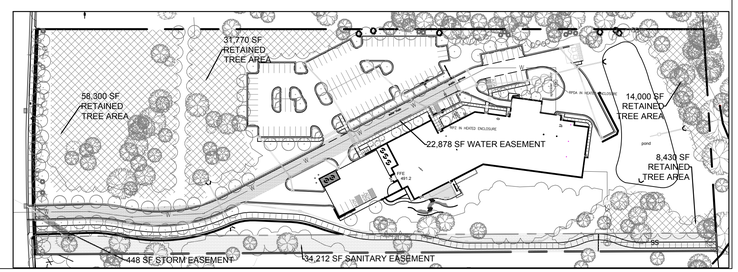
TREE COVERAGE CALCULATIONS

NET LAND AREA:
= 425,229 SF
LESS STORM EASEMENT OF 448 SF
LESS SANITARY SEWER EASEMENT OF 34,212 SF (FINAL EXTENSION)
LESS WATER EASEMENT OF 22,878 SF

NET SITE SIZE = 367,691 SF

REQUIRED TREE COVERAGE
20% OF SITE = 73,538 SF

PROVIDED TREE COVERAGE:
RETAINED CANOPY COVERAGE: 112,500 SF
102 NEW CANOPY TREES



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NORTH CAROLINA PROFESSIONAL SEAL 1302 WENDIL RAMSTEN
10·14·2019

Project
CAROLINA DONOR SERVICES
7000 MILLHOUSE ROAD
CHAPEL HILL, NC 27517

Job Number 1652
Drawn MTC, WLR
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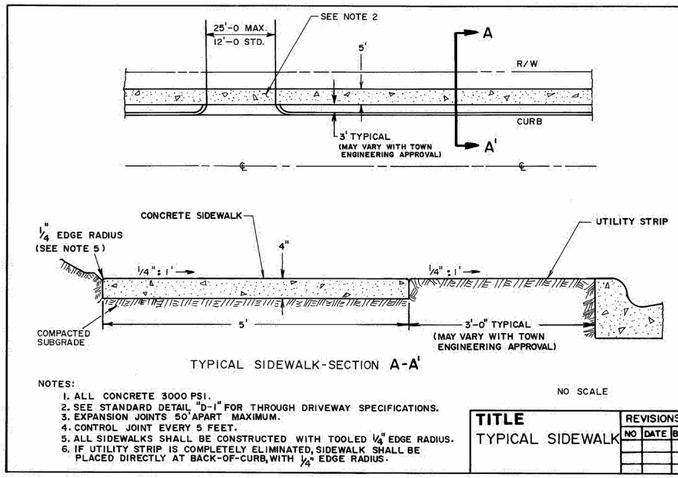
ZCP APPLICATION NOT ISSUED FOR CONSTRUCTION

Sheet Title
LANDSCAPE PLAN

Sheet Number
CD-7.0

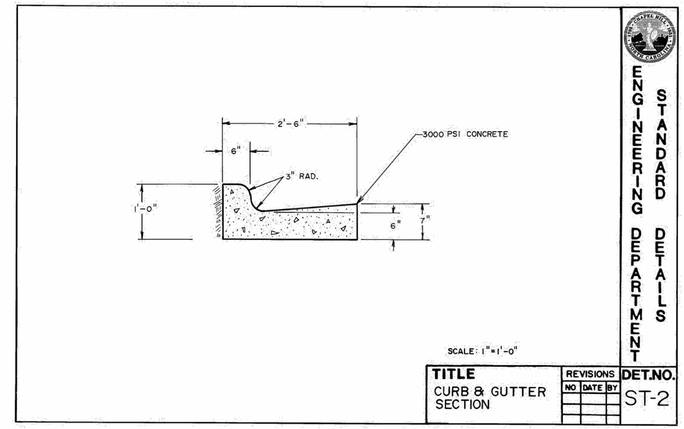


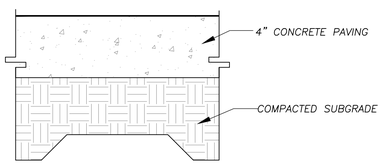
CONCRETE SIDEWALK IN ROW

- CONTRACTION JOINTS SHALL BE SPACED AT 10 FOOT INTERVALS. EXCEPT THAT A 15 FOOT SPACING MAY BE USED WHEN A MACHINE IS USED OR WHEN SATISFACTORY SUPPORT FOR THE FACE FORM CAN BE OBTAINED WITHOUT THE USE OF TEMPLATES AT 10 FOOT INTERVALS. JOINT SPACING MAY BE ALTERED BY THE ENGINEER TO PREVENT UNCONTROLLED CRACKING.
- CONTRACTION JOINTS MAY BE INSTALLED BY THE USE OF TEMPLATES OR FORMED BY OTHER APPROVED METHODS. WHERE SUCH JOINTS ARE NOT FORMED BY TEMPLATES, A MINIMUM DEPTH OF 1 1/2" SHALL BE MAINTAINED.
- CONCRETE FOR CURBING SHALL HAVE A MINIMUM COMPRESSION STRENGTH OF 3000 PSI AT 28 DAYS.
- ALL CONTRACTION JOINTS SHALL BE FILLED WITH JOINT FILLER.
- JOINTS SHALL MATCH LOCATIONS WITH JOINT IN ABUTTING SIDEWALK.
- EXPANSION JOINTS SHALL BE SPACED AT 90 FOOT INTERVALS AND ADJACENT TO ALL RIGID OBJECTS.

2 / CD-8.0 CURB AND GUTTER

no scale





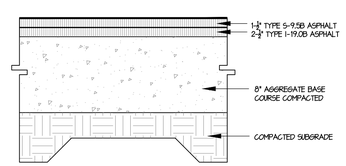
NOTES:

1. ALL CONCRETE 3000 PSI.
2. ALL SIDEWALKS SHALL BE CONSTRUCTED WITH TOOLED 1/4" EDGE RADIUS.
3. BROOM FINISH
4. SIDEWALKS ARE TO HAVE A MAXIMUM CROSS SLOPE OF 2.0%.
5. SEE DETAIL 2/C808 FOR SIDEWALKS IN OLD MASON FARM ROAD RIGHT OF WAY.

CONCRETE SIDEWALK WITHIN SITE

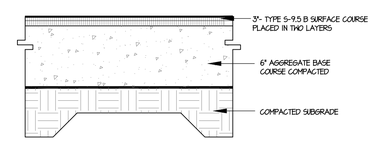
1 / CD-8.0 CONCRETE SIDEWALK

no scale



3 / CD-8.0 HEAVY DUTY ASPHALT PAVING

no scale



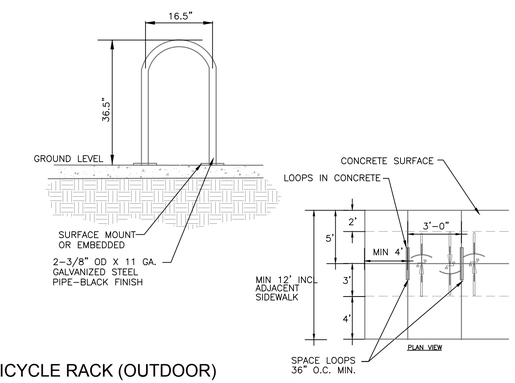
FINAL PAVEMENT SECTION IS PROVIDED BY GEO-TECHNICAL ENGINEER BASED SITE SPECIFIC GEO-TECHNICAL REPORT

4 / CD-8.0 LIGHT DUTY ASPHALT PAVING

no scale

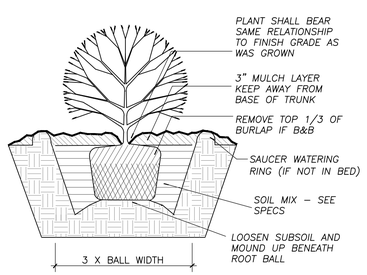
NOTES:

1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
2. DO NOT SCALE DRAWINGS.



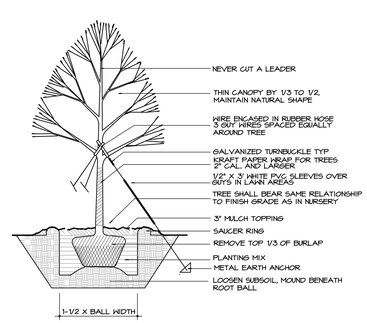
5 / CD-8.0 BICYCLE RACK (OUTDOOR)

no scale



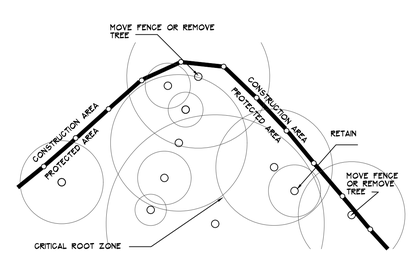
7 / CD-8.0 SHRUB PLANTING

no scale



8 / CD-8.0 TREE PLANTING

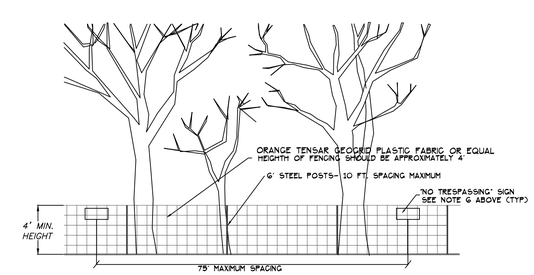
no scale



NOTES:

1. MOVE FENCE OR REMOVE TREE IF MORE THAN 20% OF A TREE'S CRITICAL ROOT AREA IS UNPROTECTED.
2. ROOT PRUNE TREES TO REMAIN WHERE CONSTRUCTIONACTIVITIES WILL SEVER ROOTS.
3. ANY TREE ROOTS EXPOSED BY CONSTRUCTION SHALL BE SEVERED CLEANLY WITH A PRUNING TOOL
4. DO NOT DISPOSE OF ANY CHEMICALS OR REMOVE SOIL OUTSIDE THE LIMITS OF WORK
5. WHEN INSTALLING NEW LANDSCAPE PLANTS, DO NOT DRIVE EQUIPMENT UPON OR DISTURB THE SOIL WITHIN THE CRITICAL ROOT ZONE OF EXISTING TREES.

6. SIGNAGE MUST BE PLACED ON TREE PROTECTION FENCING WITH A MINIMUM MINIMUM SPACING OF 75' O.C., TO READ 'TREE PROTECTION AREA - NO TRESPASSING WITHIN THE FENCE'.



9 / CD-8.0 TREE PROTECTION FENCE

no scale

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NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT 1302 WENDIL RAMSDEN
10·14·2019

Project

CAROLINA DONOR SERVICES
7000 MILLHOUSE ROAD
CHAPEL HILL, NC 27517

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PROGRESS SET
ZCP APPLICATION
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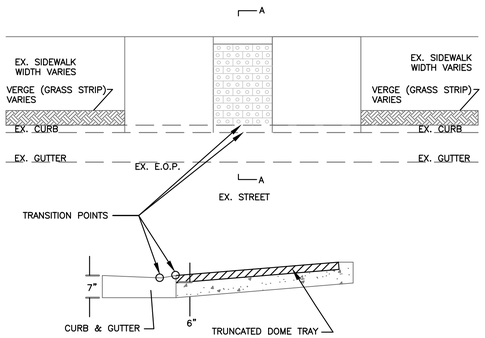
Sheet Title

SITE DETAILS

Sheet Number

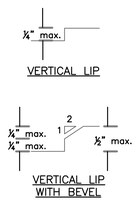
CD-8.0



SECTION A–A

NOTE:

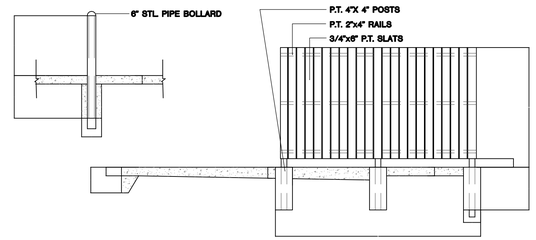
THE TRANSITION BETWEEN THE TRUNCATED DOME TRAY AND THE CURB SHOULD BE MADE TO BE FLUSH. THE TRANSITION BETWEEN THE CURB AND THE GUTTER SHOULD BE SMOOTH OR ROUNDED. IF NEITHER A FLUSH OR SMOOTH TRANSITION CAN BE CONSTRUCTED, AND THE TRANSITIONS CHANGE IN LEVEL, UP TO ¼", THEN THE LIP MAY BE VERTICAL AND WITHOUT EDGE TREATMENT. IF THE TRANSITIONS CHANGE IN LEVEL, BETWEEN ¼" AND ½", THEN THE LIP SHALL BE BEVELED WITH A SLOPE NO GREATER THAN 1:2.

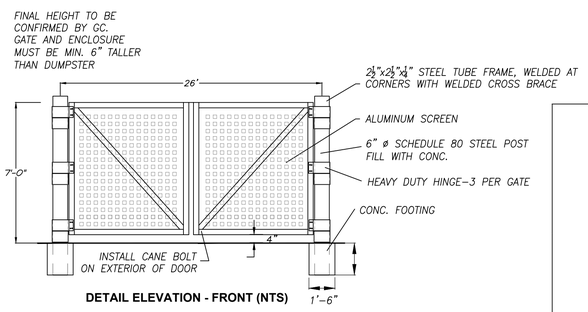


1 CD-8.1 ACCESSIBLE RAMP

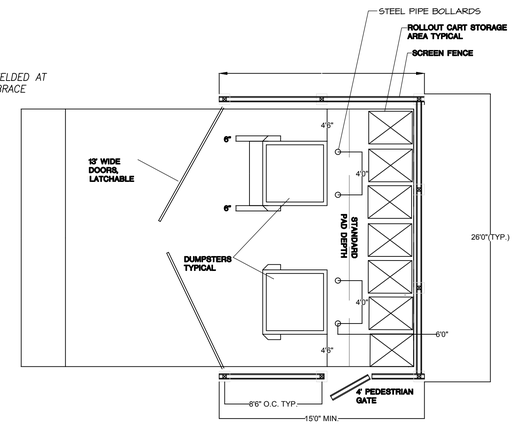
1" = 4'-0"

NOTES:
1. INSTALL 6" DIA STEEL POSTS 3' HIGH ABOVE GRADE SET IN 8" CYLINDER OF CLASS C CONCRETE, MIN. 2' DEEP
2. NO AWNINGS OR BUILDING PROJECTIONS ALLOWED IN AREAS TRAVELED BY REFUSE TRUCKS
3. DUMPSTER PAD CONSTRUCTION TO BE INSPECTED BY CHAPEL HILL PUBLIC WORKS PRIOR TO POURING CONCRETE.





DETAIL ELEVATION - FRONT (NTS)

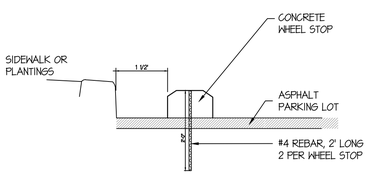


2 CD-8.1 DOUBLE DUMPSTER W/ PEDESTRIAN DOOR

NOT TO SCALE

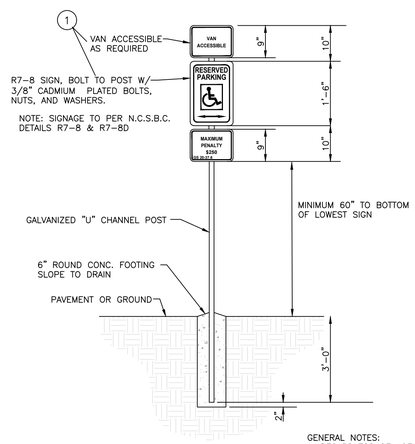
3 CD-8.1 NOT USED

NO SCALE



4 CD-8.1 WHEELSTOP

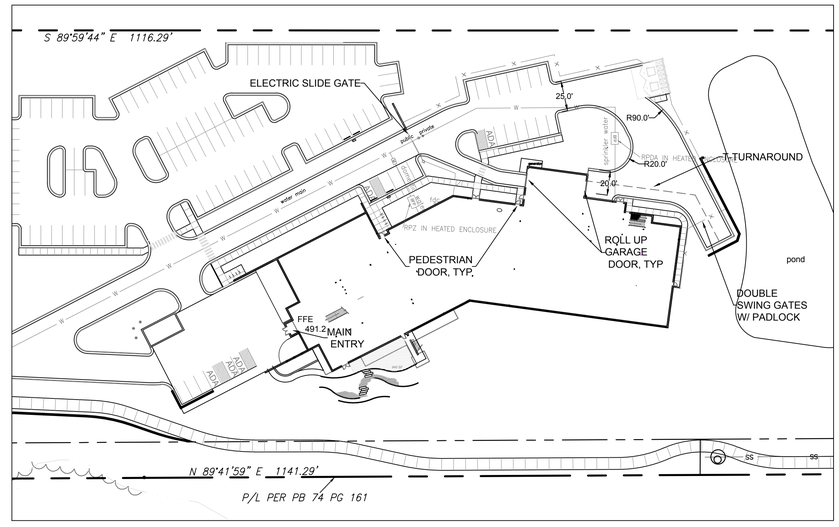
NOT TO SCALE



GENERAL NOTES:
1. REGARDLESS OF AGE, ALL ACCESSIBLE SPACES SHALL BE IDENTIFIED BY ABOVE–GROUND SIGNS ONLY.
2. NEW SPACES SHALL NOT USE GROUND–PAINTED SYMBOLS.
3. ACCESSIBLE SPACES ARE REQUIRED TO BE STRIPED OFF ONLY; BLUE COLORING IS NOT NECESSARY NOR REQUIRED.
4. STRIPING IS WHITE ON DARK PAVEMENT; BLACK ON LIGHT PAVEMENT. (N.C.D.O.T.)

5 CD-8.1 ADA SIGNAGE

NOT TO SCALE



7 CD-8.1 FIRE TRUCK ACCESS DEMONSTRATION

1"=60'

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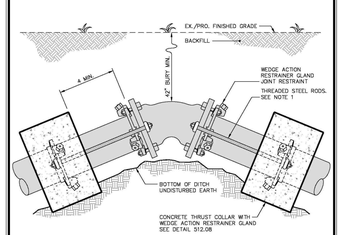
SITE DETAILS

Sheet Number

CD-8.1

Details Provided by APPIAN Consulting Engineers – WWW.APPIANENGINEERS.COM 07/17/2003 – 7:53:08 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)

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ORANGE WATER AND SEWER AUTHORITY
STANDARD VERTICAL BEND DETAIL
SCALE: Not To Scale | DETAIL # 512.01 | REVISION DATE: August 15, 2003 | SHEET # 1 of 1

1/CD-8.2
STANDARD VERTICAL BEND
NO SCALE

Details Provided by APPIAN Consulting Engineers – WWW.APPIANENGINEERS.COM 07/17/2003 – 7:50:53 AM

TEST PRESSURE = 250 P.S.I.

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	0.08
	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°	6.00	3.50	3.50	1.43
	90°	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.

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ORANGE WATER AND SEWER AUTHORITY
BLOCKING DETAIL for HORIZONTAL BENDS AND TEE
SCALE: Not To Scale | DETAIL # 512.02 | REVISION DATE: August 15, 2003 | SHEET # 3 of 4

2/CD-8.2
OWASA STANDARD BLOCKING DETAIL
NO SCALE

Details Provided by APPIAN Consulting Engineers – WWW.APPIANENGINEERS.COM 07/17/2003 – 7:51:32 AM

TEST PRESSURE = 200 P.S.I.

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	0.08
	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°	3.00	2.00	3.00	0.39
	45°	4.00	2.50	3.00	0.61
	90°	5.50	3.00	3.50	1.13
	TEE / PLUG	5.50	3.00	3.00	0.97
16 INCHES	11 1/4°	2.00	2.00	3.00	0.28
	22 1/2°	4.00	2.00	3.00	0.50
	45°	5.50	3.00	3.50	1.13
	90°	7.50	4.00	3.50	2.01
	TEE / PLUG	7.50	4.00	3.00	1.72

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.

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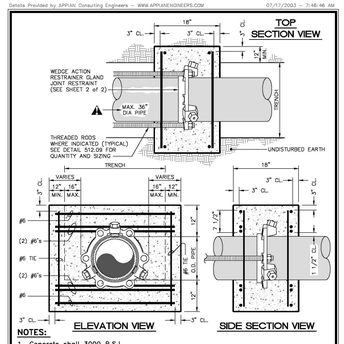
ORANGE WATER AND SEWER AUTHORITY
BLOCKING DETAIL for HORIZONTAL BENDS AND TEE
SCALE: Not To Scale | DETAIL # 512.03 | REVISION DATE: August 15, 2003 | SHEET # 4 of 4

3/CD-8.2
OWASA TIE ROD ANCHORS CHART
NO SCALE

Details Provided by APPIAN Consulting Engineers – WWW.APPIANENGINEERS.COM 07/17/2003 – 7:46:46 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.

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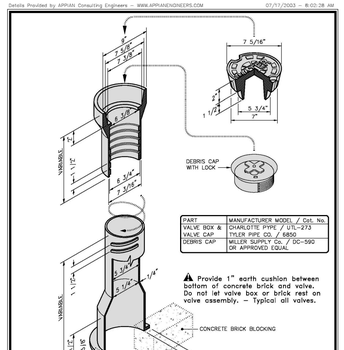
ORANGE WATER AND SEWER AUTHORITY
THRUST COLLAR & BLOCKING with WEDGE ACTION RESTRAINER GLAND
SCALE: Not To Scale | DETAIL # 512.08 | REVISION DATE: August 15, 2003 | SHEET # 1 of 1

4/CD-8.2
OWASA STANDARD THRUST COLLAR AND BLOCKING
NO SCALE

Details Provided by APPIAN Consulting Engineers – WWW.APPIANENGINEERS.COM 07/17/2003 – 8:03:28 AM



PART	MANUFACTURER MODEL / Cat. No.
VALVE BOX & VALVE CAP	CHARLOTTE PIPE / UTL-273
DEBRIS CAP	TYLER PIPE CO. / 6850
	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".

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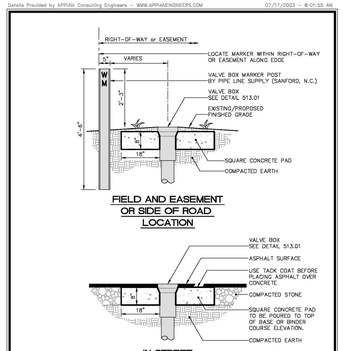
ORANGE WATER AND SEWER AUTHORITY
STANDARD SCREW VALVE BOX DETAIL
SCALE: Not To Scale | DETAIL # 513.01 | REVISION DATE: August 15, 2003 | SHEET # 1 of 1

5/CD-8.2
STANDARD SCREW VALVE BOX
NO SCALE

Details Provided by APPIAN Consulting Engineers – WWW.APPIANENGINEERS.COM 07/17/2003 – 8:01:55 AM



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

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ORANGE WATER AND SEWER AUTHORITY
VALVE BOX STABILIZING PAD DETAILS
SCALE: Not To Scale | DETAIL # 514.01 | REVISION DATE: August 15, 2003 | SHEET # 1 of 1

6/CD-8.2
OWASA VALVE BOX STABILIZING PAD DETAILS
NO SCALE

Details Provided by APPIAN Consulting Engineers – WWW.APPIANENGINEERS.COM 07/17/2003 – 7:51:46 AM

TEST PRESSURE = 150 P.S.I.

PIPE SIZE	TYPE FITTING	DIMENSIONS (Ft.) "L"	"H"	"T"	VOLUME, CONCRETE CU. YD.
4 INCHES	11 1/4°	---	---	---	---
	22 1/2°	1.00	1.00	1.50	0.06
	45°	1.00	1.00	1.50	0.06
	90°	1.00	1.00	2.50	0.09
	TEE / PLUG	1.00	1.00	2.00	0.07
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°	1.00	1.00	2.50	0.09
	90°	1.50	1.50	2.50	0.15
	TEE / PLUG	1.50	1.50	2.00	0.12
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°	1.50	1.50	2.50	0.15
	90°	2.00	2.00	3.00	0.28
	TEE / PLUG	2.00	2.00	2.50	0.23
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°	2.00	2.00	2.75	0.25
	90°	3.00	2.00	3.00	0.39
	TEE / PLUG	3.00	2.00	2.50	0.32
12 INCHES	11 1/4°	2.00	2.00	3.00	0.28
	22 1/2°	2.00	2.00	3.00	0.28
	45°	3.00	2.50	3.00	0.47
	90°	4.50	3.00	3.50	0.94
	TEE / PLUG	4.50	3.00	3.00	0.81
16 INCHES	11 1/4°	2.00	2.00	3.00	0.28
	22 1/2°	3.00	2.00	3.00	0.39
	45°	4.00	3.00	3.50	0.84
	90°	6.50	3.50	3.50	1.54
	TEE / PLUG	6.50	3.50	3.00	1.32

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.

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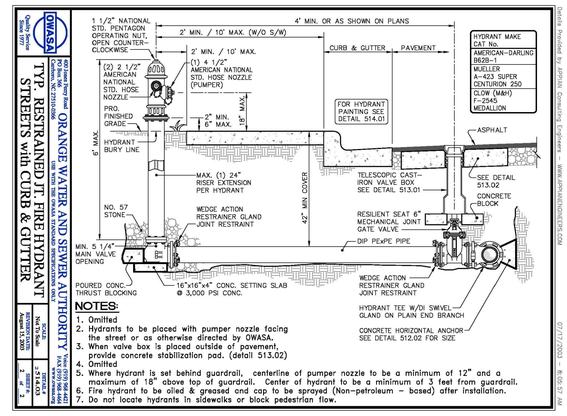
ORANGE WATER AND SEWER AUTHORITY
BLOCKING DETAIL for HORIZONTAL BENDS AND TEE
SCALE: Not To Scale | DETAIL # 512.02 | REVISION DATE: August 15, 2003 | SHEET # 3 of 4

7/CD-8.2
OWASA STANDARD BLOCKING DETAIL
NO SCALE



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.

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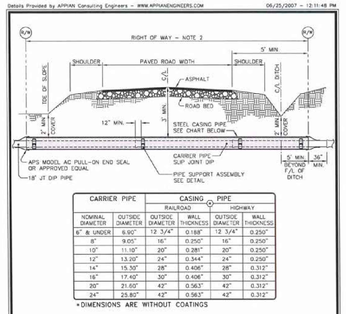
ORANGE WATER AND SEWER AUTHORITY
TYP. RESTRAINED JT. FIRE HYDRANT STREETS with CURB & GUTTER
SCALE: Not To Scale | DETAIL # 514.03 | REVISION DATE: August 15, 2003 | SHEET # 2 of 2

8/CD-8.2
TYPICAL FIRE HYDRANT INSTALLATION (W/RESTRAINED JOINT PIPE)
NO SCALE

Details Provided by APPIAN Consulting Engineers – WWW.APPIANENGINEERS.COM 06/25/2007 – 12:11:48 PM



CARRIER PIPE		CASING PIPE			
		RAILROAD		HIGHWAY	
NOMINAL DIAMETER	OUTSIDE DIAMETER	OUTSIDE DIAMETER	WALL THICKNESS	OUTSIDE DIAMETER	WALL THICKNESS
6" & UNDER	6.90"	12 3/4"	0.188"	12 3/4"	0.250"
8"	9.05"	16"	0.250"	16"	0.250"
10"	11.10"	20"	0.281"	20"	0.250"
12"	13.20"	24"	0.344"	24"	0.250"
14"	15.30"	28"	0.406"	28"	0.312"
16"	17.40"	30"	0.406"	30"	0.312"
20"	21.60"	42"	0.563"	42"	0.312"
24"	25.80"	42"	0.563"	42"	0.312"

+DIMENSIONS ARE WITHOUT COATINGS

NOTES:
1. Installation by dry bore & jacking.
2. Bore to run from Right-of-Way to Right-of-Way unless approved otherwise by OWASA.
3. Grease encasement pipe as required for ease of installation.
4. Steel pipe to be 35,000 psi min. yield strength, grade B.
5. All exposed metal to be coated with epoxy or asphaltic material.
6. Skids to be installed, manufactured by ITT Grinnell, Charlotte, N.C. / Spider Manufacturing, Durham, N.C. / APS casing spacers by Advanced Products Systems Inc, Lafayette, LA. / or approved equal.

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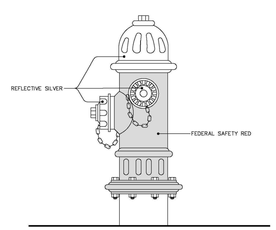
ORANGE WATER AND SEWER AUTHORITY
TYPICAL DETAIL for BORE UNDER PAVED ROADS / HIGHWAYS
SCALE: Not To Scale | DETAIL # 517.01 | REVISION DATE: August 15, 2003 | SHEET # 1 of 1

9/CD-8.2
OWASA STANDARD TAPPING SLEEVE AND VALVE
NO SCALE

Details Provided by APPIAN Consulting Engineers – WWW.APPIANENGINEERS.COM 07/17/2003 – 8:07:42 AM



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

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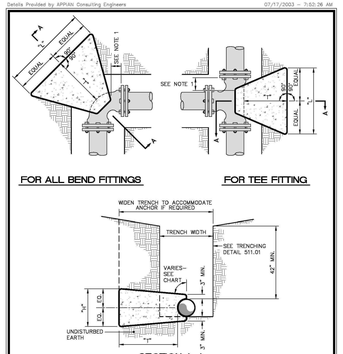
ORANGE WATER AND SEWER AUTHORITY
FIRE HYDRANT PAINTING SPECIFICATIONS
SCALE: Not To Scale | DETAIL # 514.01 | REVISION DATE: August 15, 2003 | SHEET # 1 of 1

10/CD-8.2
OWASA FIRE HYDRANT PAINTING SPECS
NO SCALE

Details Provided by APPIAN Consulting Engineers 07/17/2003 – 7:53:26 AM



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.

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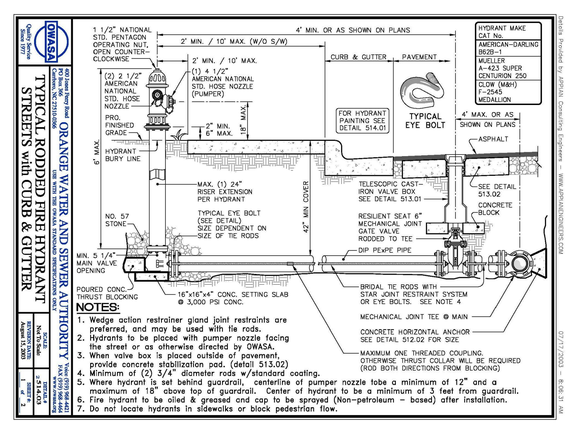
ORANGE WATER AND SEWER AUTHORITY
BLOCKING DETAIL for HORIZONTAL BENDS AND TEE
SCALE: Not To Scale | DETAIL # 512.02 | REVISION DATE: August 15, 2003 | SHEET # 4 of 4

11/CD-8.2
OWASA STANDARD BLOCKING DETAIL
NO SCALE



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.

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ORANGE WATER AND SEWER AUTHORITY
TYPICAL RODDED FIRE HYDRANT STREETS with CURB & GUTTER
SCALE: Not To Scale | DETAIL # 514.03 | REVISION DATE: August 15, 2003 | SHEET # 2 of 2

12/CD-8.2
TYPICAL FIRE HYDRANT INSTALLATION
NO SCALE

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www.cjtpa.com
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NC BOARD OF LANDSCAPE ARCHITECTS LIC# C-104

NORTH CAROLINA PROFESSIONAL SEAL 23461 ENGINEER CHARLES K. HILL, JR. 10/14/19

Project
CAROLINA DONOR SERVICES
7000 MILLHOUSE ROAD
CHAPEL HILL, NC 27517

Job Number 1652

Drawn	MTC, WLR
Checked	WLR, CNH
Date	10/14/2019
Revisions	

ZCP APPLICATION NOT ISSUED FOR CONSTRUCTION

Sheet Title
WATER DETAILS

Sheet Number
CD-8.2

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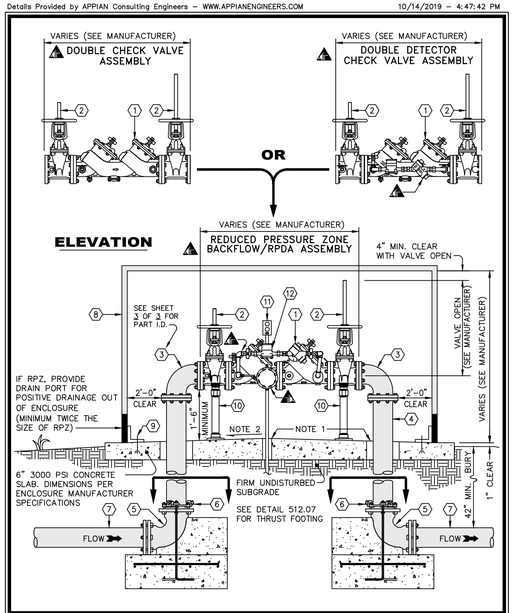

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2 1/2" to 10" DCV, DDCV, RPZ, RPDA ASSEMBLY (ABOVE GROUND)

SCALE: Not To Scale | DETAIL # ≥ 515.10 | REVISION DATE: August 15, 2003 | SHEET # 1 of 3

1/CD-8.3
BACKFLOW PREVENTER DETAIL (1 OF 3)
NTS

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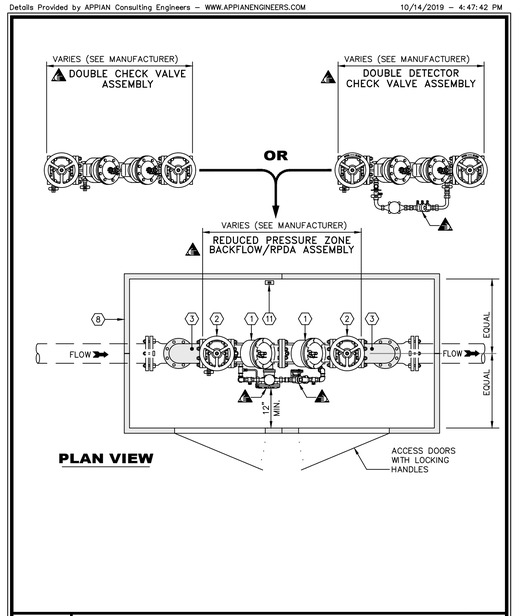

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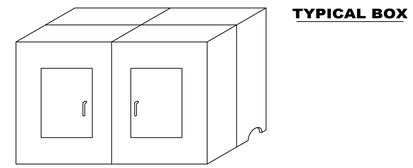
2 1/2" to 10" DCV, DDCV, RPZ, RPDA ASSEMBLY (ABOVE GROUND)

SCALE: Not To Scale | DETAIL # ≥ 515.10 | REVISION DATE: August 15, 2003 | SHEET # 2 of 3

1/CD-8.3
BACKFLOW PREVENTER DETAIL (2 OF 3)
NTS

Details Provided by APPIAN Consulting Engineers – WWW.APPIANENGINEERS.COM 10/14/2019 – 4:47:42 PM



#	PART	MANUFACTURER MODEL / Cat. No.
1	BACKFLOW ASSEMBLY	USC & ASSE APPROVED
2	OS&Y GATE VALVE WITH RESILIENT SEATS	TO BE APPROVED BY OWASA
3	90° DIP FLANGE x FLANGE ELBOW	AMERICAN CAST IRON PIPE, GRIFFIN PIPE CO., UNION–TYLER PIPE CO., or U.S. PIPE & FOUNDRY
4	DIP FLANGE x PE PIPE (VERIFY LENGTH)	AMERICAN CAST IRON PIPE, GRIFFIN PIPE CO., U.S. PIPE & FOUNDRY
5	90° DIP MJ x MJ ELBOW	AMERICAN CAST IRON PIPE, GRIFFIN PIPE CO., UNION–TYLER PIPE CO., or U.S. PIPE & FOUNDRY
6	WEDGE ACTION RESTRAINER GLAND JOINT RESTRAINT	EBBA IRON SALES, INC., FORD
7	3" THRU 10" DIP	AMERICAN CAST IRON PIPE, GRIFFIN PIPE CO., UNION–TYLER PIPE CO., or U.S. PIPE & FOUNDRY
8	INSULATED ENCLOSURE WITH LOCKING ACCESS DOORS AND HEATER (120 V, 1 PHASE, 60 HZ) VERIFY FITTINGS WILL FIT INSIDE BOX BEFORE ORDERING	HOTBOX / HB4E – HB10E (OR APPROVED EQUIVALENT)
9	STAINLESS STEEL EXPANSION ANCHOR BOLTS PER BOX MANUFACTURER RECOMMENDED SIZE & SPACING	---
10	ADJUSTABLE PIPE SUPPORTS HOT DIP GALVANIZED	SHOP FABRICATED AND HOT DIP GALVANIZED OR "STANDON" MODEL S92 SADDLE SUPPORT
11	PROVIDE 120V RECEPTACLE ON GFCI NEAR PIPE RISER, SET MINIMUM 12" ABOVE DISCHARGE POINT OF RPZ. (AS APPLICABLE)	UL STD. 943–NEMA 3R.
12	METER WITH ERT	PURCHASE FROM OWASA

NOTES:
1. Provide minimum 3" annular clearance around all DIP risers and 1" around electrical conduit.
2. Slope floor to drain to ports at both ends. Ensure positive surface grade away from enclosure.
3. If metal enclosure issued, mount ERT on outside of box.

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2 1/2" to 10" DCV, DDCV, RPZ, RPDA ASSEMBLY (ABOVE GROUND)

SCALE: Not To Scale | DETAIL # ≥ 515.10 | REVISION DATE: May 15, 2007 | SHEET # 3 of 3

1/CD-8.3
BACKFLOW PREVENTER DETAIL (3 OF 3)
NTS

2/CD-8.3
NOT USED
NTS

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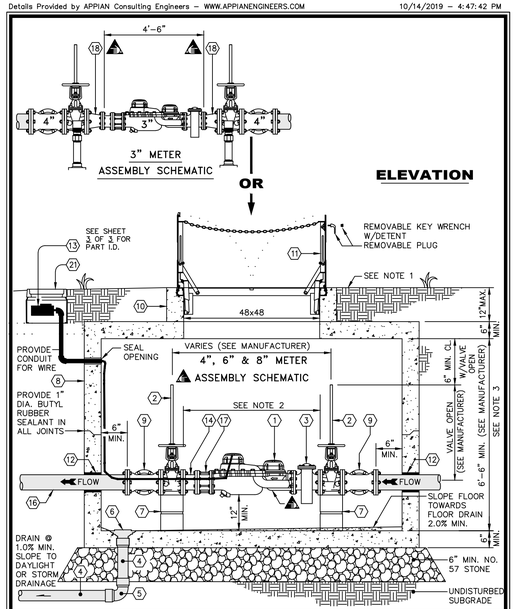

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3" to 8" WATER METER WITH BYPASS (UNDER GROUND VAULT)

SCALE: Not To Scale | DETAIL # ≥ 515.13 | REVISION DATE: April 13, 2007 | SHEET # 1 of 3

3/CD-8.3
WATER METER DETAIL (1 OF 3)
NTS

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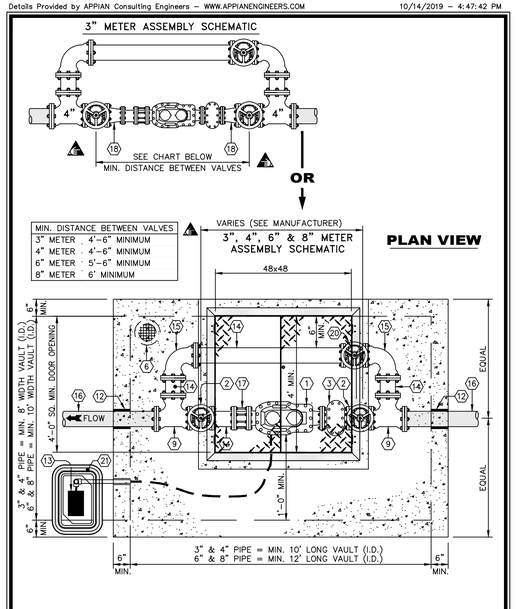

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3" to 8" WATER METER WITH BYPASS (UNDER GROUND VAULT)

SCALE: Not To Scale | DETAIL # ≥ 515.13 | REVISION DATE: April 13, 2007 | SHEET # 2 of 3

3/CD-8.3
WATER METER DETAIL (2 OF 3)
NTS

Details Provided by APPIAN Consulting Engineers – WWW.APPIANENGINEERS.COM 10/14/2019 – 4:47:42 PM

#	PART	MANUFACTURER MODEL / Cat. No.
1	COMPOUND METER OR TURBINE METER	TO BE APPROVED BY OWASA
2	OS&Y D.I. GATE VALVE WITH RESILIENT SEATS	TO BE APPROVED BY OWASA
3	STRAINER	TO BE APPROVED BY OWASA
4	DIP CLASS 350	SIZE & TYPE DETERMINED BY NC PE.
5	DIP CLASS 350	SIZE & TYPE DETERMINED BY NC PE.
6	FLOOR DRAIN WITH STRAINER	SIZE & TYPE DETERMINED BY NC PE BASED ON SIZE OF WATER MAIN. (TO BE APPROVED BY OWASA)
7	MORTARED MASONRY BLOCK PIPE SUPPORTS (MINIMUM 4 REQUIRED)	
8	PRECAST CONCRETE UTILITY VAULT BOX. MIN. 4,000 PSI @ 28 DAYS VERIFY FITTINGS WILL FIT INSIDE BOX BEFORE ORDERING	STAY–RIGHT PRECAST VAULT, H20 LOAD RATING (OR APPROVED EQUIVALENT)
9	DIP FLANGED TEE	AMERICAN CAST IRON PIPE, UNION–TYLER PIPE CO., or U.S. PIPE & FOUNDRY
10	4'–0" MIN. WIDTH (I.D.) x 4'–0" LONG (I.D.) RISER. SEE SHEET 2 of 3 FOR MINIMUM LENGTH.	STAY–RIGHT PRECAST VAULT, H20 LOAD RATING (OR APPROVED EQUIVALENT)
11	4' WIDE x 4' LONG DOOR CAST INTO RISER (DRAIN TO OUTSIDE) SEE SHEET 2 of 3 FOR MINIMUM LENGTH.	BILCO OR HALIDAY PRODUCTS DOUBLE LEAF ACCESS DOOR. USE H20 LOADING IN ALL AREAS. DRAIN TO OUTSIDE (OR APPROVED EQUAL)
12	WALL SLEEVE WITH LINK SEAL (OR APPROVED EQUIVALENT)	TO BE APPROVED BY OWASA
13	REMOTE METER READOUT (IN GALLONS) ELECTRONIC ERT	TO BE APPROVED BY OWASA
14	DIP FLANGE x FLANGE SPOOL PIPE OR THREADED END FOR FLANGE (VERIFY LENGTH)	AMERICAN CAST IRON PIPE, U.S. PIPE & FOUNDRY
15	DIP FLANGED 90° ELBOW (SHORT RADIUS)	AMERICAN CAST IRON PIPE, UNION–TYLER PIPE CO., or U.S. PIPE & FOUNDRY
16	4", 6" OR 8" DIP FLANGED x PE PIPE (USE 1 FULL LENGTH JOINT PIPE)	AMERICAN CAST IRON PIPE, UNION–TYLER PIPE CO., or U.S. PIPE & FOUNDRY
17	FLANGED ADAPTOR	UNIFLANGE (TO BE APPROVED BY OWASA)
18	DIP FLANGED 4"x3" REDUCER	AMERICAN CAST IRON PIPE, UNION–TYLER PIPE CO., or U.S. PIPE & FOUNDRY
19		
20	OS&Y GATE VALVE WITH RESILIENT SEATS	DRILL STEM FOR SEALING IN CLOSED POSITION (TO BE APPROVED BY OWASA)
21	METER BOX	CDR SYSTEMS CORP. / WA04–1118–12C MID–STATES PLASTICS, INC. / MSBC 1118–12

NOTES:
1. Ensure positive surface grade away from box.
2. 3" Meter to use 4" OS&Y DI valves and (2) 4"x3" DI flanged reducers with section of 3" flanged DI pipe and 3" DI flanged coupling adaptor.
3. For vaults less than 6'–6" high see detail 515.14

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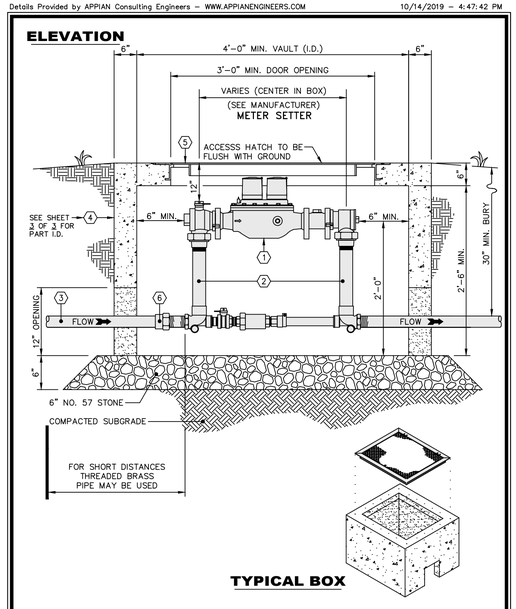
3" to 8" WATER METER WITH BYPASS (UNDER GROUND VAULT)

SCALE: Not To Scale | DETAIL # ≥ 515.13 | REVISION DATE: April 13, 2007 | SHEET # 3 of 3

3/CD-8.3
WATER METER DETAIL (3 OF 3)
NTS

Details Provided by APPIAN Consulting Engineers – WWW.APPIANENGINEERS.COM 10/14/2019 – 4:47:42 PM



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STANDARD 2" METER VAULT

SCALE: Not To Scale | DETAIL # ≥ 515.04 | REVISION DATE: December, 2010 | SHEET # 1 of 3

4/CD-8.3
METER VAULT DETAIL (1 OF 3)
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NORTH CAROLINA PROFESSIONAL SEAL 23461 ENGINEER CHARLES A. HILL, JR. 10/14/19

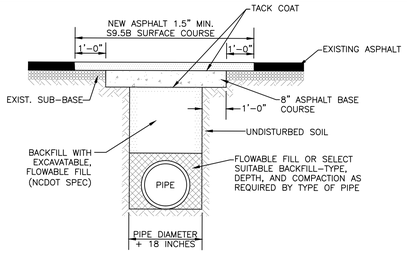
Project
CAROLINA DONOR SERVICES
7000 MILLHOUSE ROAD
CHAPEL HILL, NC 27517

Job Number 1652
Drawn MTC, WLR
Checked WLR, CNH
Date 10/14/2019
Revisions

ZCP APPLICATION NOT ISSUED FOR CONSTRUCTION

Sheet Title
WATER DETAILS

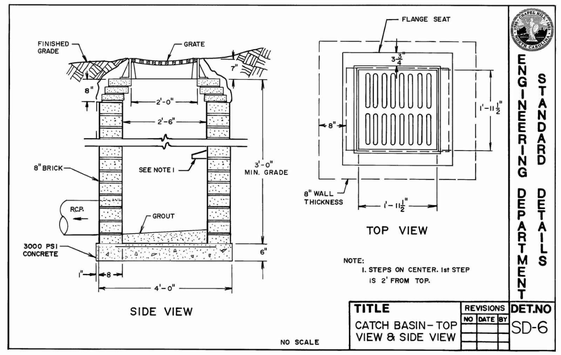
Sheet Number
CD-8.3



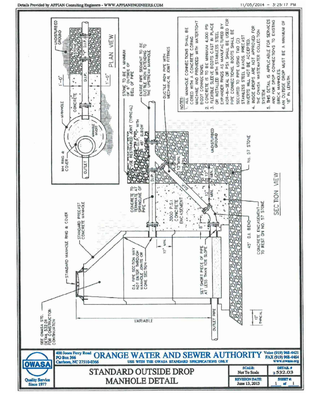
GENERAL NOTES:

1. *SAW CUT EDGES MUST BE STRAIGHT AND CLEAN.*
2. *PATCHES MUST BE REGULAR, SQUARE, OR RECTANGULAR (4 STRAIGHT EDGES).*
3. *FINAL SURFACE COURSE MUST BE FLUSH WITH THE EDGE OF EXISTING PAVEMENT, VERTICALLY AND HORIZONTALLY, WITH NO SPILLOVER OF ASPHALT OR TACK COAT.*
4. *CARE MUST BE TAKEN NOT TO DAMAGE INTEGRITY OR APPEARANCE OF SURROUNDING PAVEMENT. IF DAMAGED, THE ENTIRE SURFACE PATCH MUST BE EXPANDED TO COVER DAMAGES.*
5. *ALL STRIPING IMPACTED BY THE REPAIRS MUST BE REPLACED.*
6. *PROPER TRAFFIC CONTROL AND PLATING OF THE ROAD DURING CURE TIME FOR FLOWABLE FILL MUST BE CONDUCTED APPROPRIATELY.*
7. *THE MAXIMUM TIME TO COMPLETE THE FULL REPAIR SHALL NOT EXCEED 10 WORKING DAYS.*

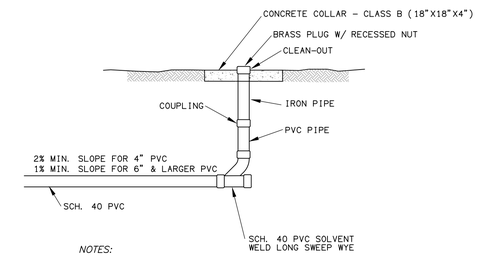
1/CD-8.4
CIRCULAR PIPE TRENCH
NO SCALE



2/CD-8.4
DROP INLET
NO SCALE



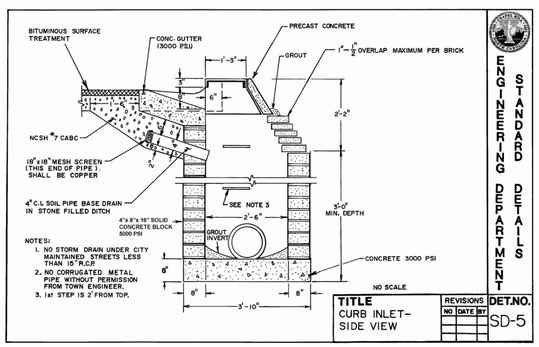
3/CD-8.4
DROP MANHOLE
NO SCALE



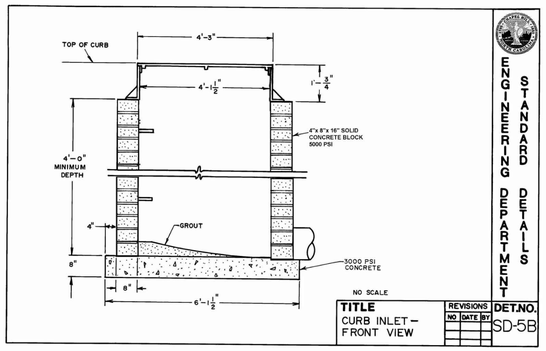
NOTES:

1. *MINOR PIPING INCLUDES ROOF LEADERS, TRENCH DRAINS, AND UNDERDRAINS.*
2. *IN TRAFFIC BEARING AREAS USE CLEAN OUT DETAIL AND COVER SIMILAR TO SEWER TRAFFIC BEARING CLEAN OUT.*
3. *COORDINATE ALL ROOF LEADER AND DOWNSPOUT LOCATIONS AND INVERTS WITH ARCHITECTURAL AND PLUMBING PLANS. REPORT DISCREPANCIES TO ENGINEER.*
4. *ALL MINOR PIPING TO BE SCHEDULE 40 PVC*

4/CD-8.4
MINOR PIPING CLEANOUT
NO SCALE



5/CD-8.4
CURB INLET (1 OF 4)
NO SCALE



6/CD-8.4
CURB INLET (2 OF 4)
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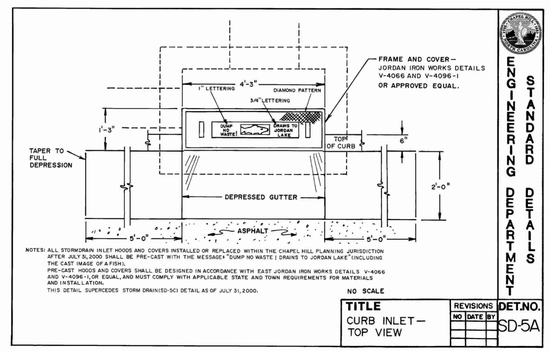

7/CD-8.4
CURB INLET (3 OF 4)
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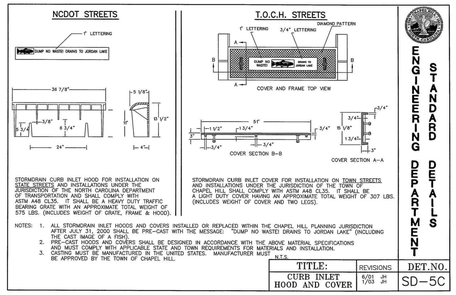

8/CD-8.4
CURB INLET (4 OF 4)
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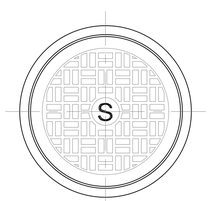
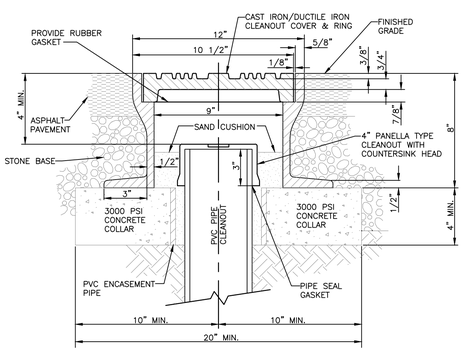


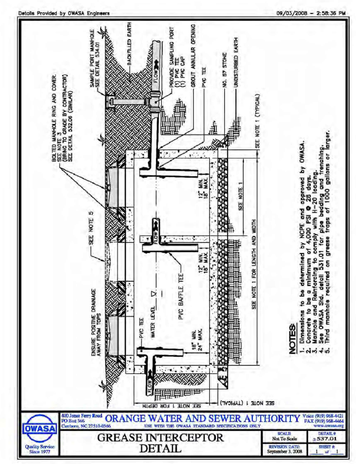
PLAN VIEW



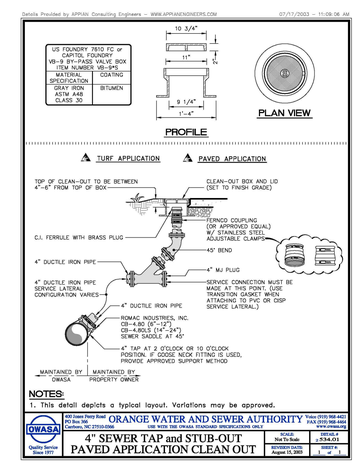
SECTION VIEW

9/CD-8.4
TRAFFIC BEARING CLEAN OUT
NO SCALE

10/CD-8.4
NOT USED
NO SCALE



11/CD-8.4
GREASE TRAP (750 GALLON)
NO SCALE



12/CD-8.4
4" SEWER TAP AND STUB-OUT
NO SCALE

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NORTH CAROLINA PROFESSIONAL SEAL 23461 ENGINEER CHARLES H. JEWELL III 10/14/19

Project
CAROLINA DONOR SERVICES
7000 MILLHOUSE ROAD
CHAPEL HILL, NC 27517

Job Number 1652
Drawn MTC, WLR
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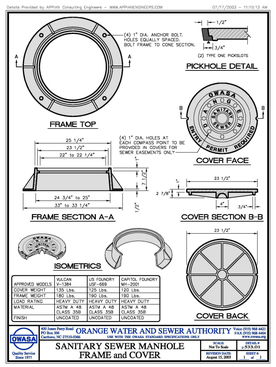
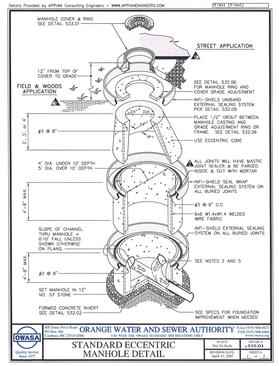
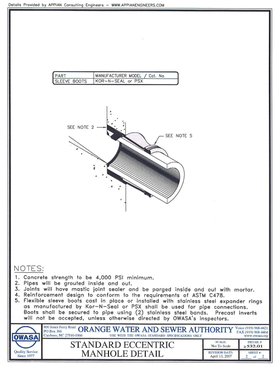


1/CD-8.5
SANITARY SEWER MANHOLE FRAME AND COVER
NO SCALE



2/CD-8.5
STANDARD ECCENTRIC MANHOLE
NO SCALE



3/CD-8.5
STANDARD ECCENTRIC MANHOLE
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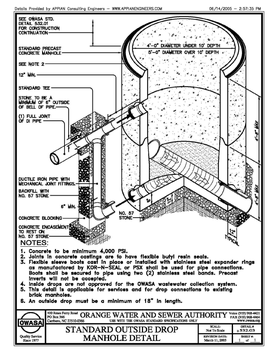

4/CD-8.5
STANDARD OUTSIDE DROP MANHOLE
NO SCALE

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NORTH CAROLINA PROFESSIONAL SEAL 23461 ENGINEER CHARLES HILL, JR.
10/14/19

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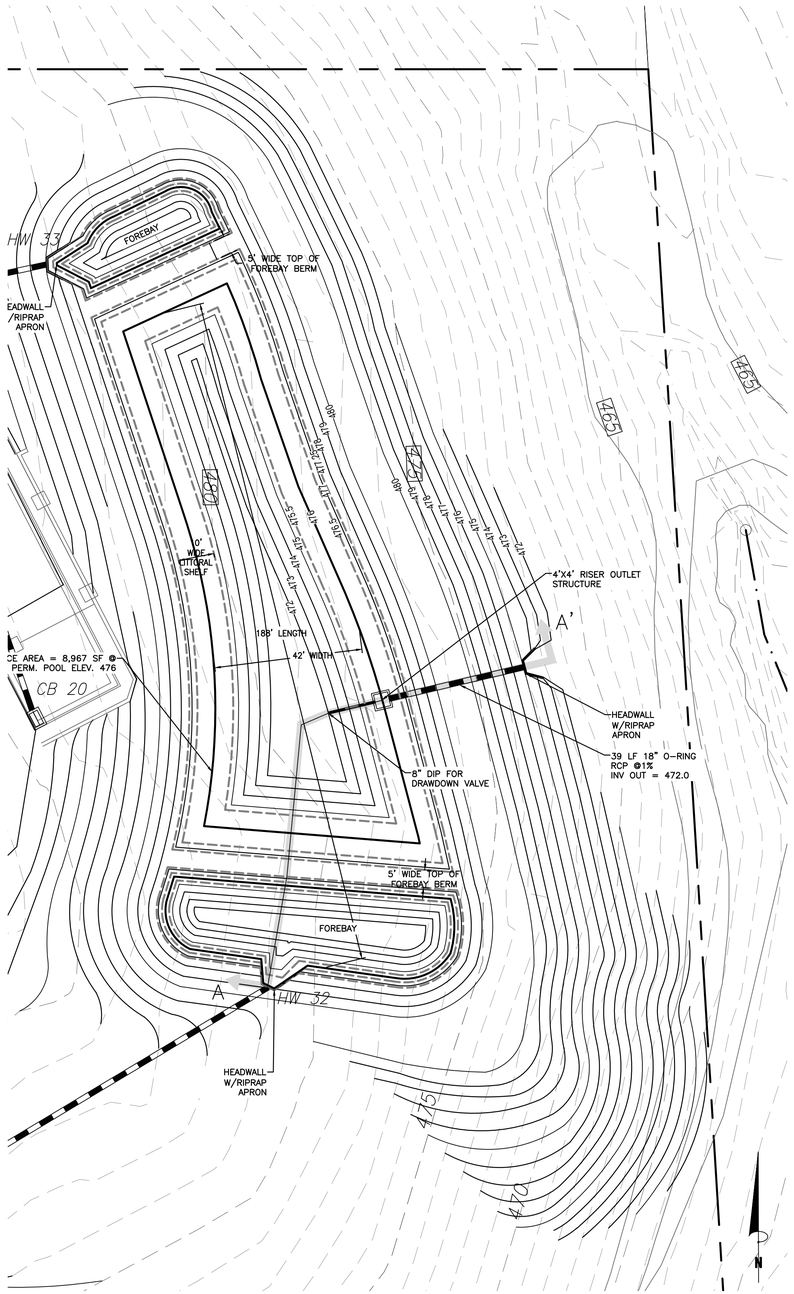
SANITARY SEWER DETAILS

Sheet Number

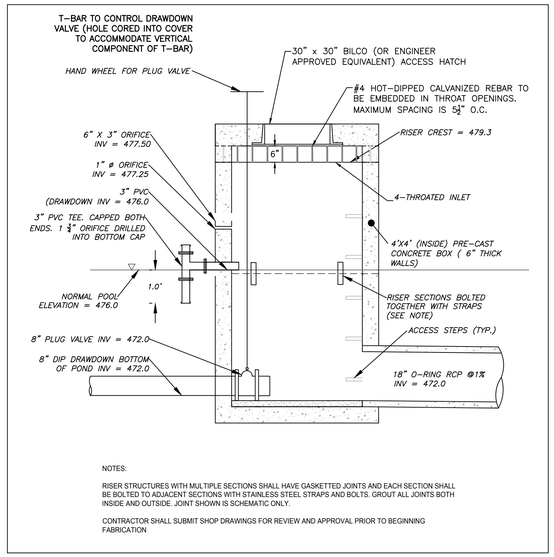
CD-8.5



POND PLAN

20 0 20 40 60

Scale 1" = 20'



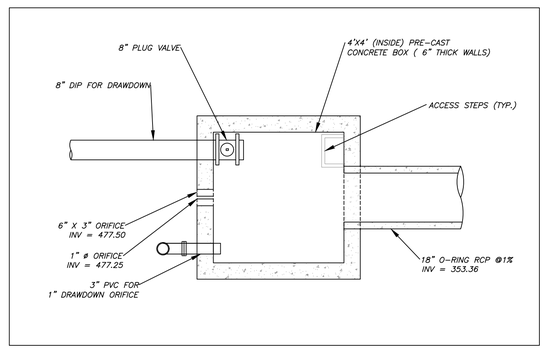
NOTES:

RISER STRUCTURES WITH MULTIPLE SECTIONS SHALL HAVE GASKETTED JOINTS AND EACH SECTION SHALL BE BOLTED TO ADJACENT SECTIONS WITH STAINLESS STEEL STRAPS AND BOLTS. GROUT ALL JOINTS BOTH INSIDE AND OUTSIDE. JOINT SHOWN IS SCHEMATIC ONLY.

CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR REVIEW AND APPROVAL PRIOR TO BEGINNING FABRICATION

2 CD-9.0 RISER SECTION VIEW

NTS



3 CD-9.0 RISER PLAN VIEW

NTS

1. PRIOR TO CONSTRUCTION OF THE STORMWATER TREATMENT FACILITY, THE GENERAL CONTRACTOR SHALL SCHEDULE AND ATTEND A PRE-CONSTRUCTION CONFERENCE WITH A REPRESENTATIVE OF THE OWNER, THE CERTIFYING GEOTECHNICAL ENGINEER, AND ANY SUBCONTRACTOR USED IN THE CONSTRUCTION OF THAT FACILITY.
2. ONCE SITE HAS BEEN STABILIZED AND ORANGE COUNTY HAS APPROVED REMOVAL OF SEDIMENT BASIN, CONVERT POND FROM SEDIMENT BASIN TO WET POND. BASIN MUST BE CLEANED OUT, RE-GRADED, AND HAVE ESTABLISHED GROUND COVER PRIOR TO USE AS A WET POND.
3. CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR ALL PRECAST CONCRETE STRUCTURES, INCLUDING SEALED ENGINEERING DRAWINGS, FOR APPROVAL BY OWNER.
4. SIDE SLOPES OF EMBANKMENT AND INSIDE OF WET POND ARE TO BE 3:1 MAX., UNLESS OTHERWISE NOTED.
5. PRINCIPAL SPILLWAY PIPES SHALL HAVE A MINIMUM PIPE STRENGTH CONFORMING TO AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM C-76, CLASS III STANDARDS. THE RUBBER GASKETTED JOINT PIPE SHALL ALSO BE WRAPPED WITH A LAYER OF GEOTEXTILE FILTER FABRIC ON THE OUTSIDE OF THE PIPE AT EACH JOINT. THE FABRIC SHALL MEET NCDOT SPECIFICATIONS FOR TYPE II FILTER FABRIC. SEE SECTION 1056 (TABLE 1056-1) IN THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION'S 2012 EDITION OF THE STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES. THE FABRIC WRAP SHALL BE BETWEEN TWO AND THREE FEET WIDE, SHALL BE CENTERED OVER EACH PIPE JOINT, AND SHALL COVER A MINIMUM OF ONE-FOOT LENGTH OF EACH PIPE SEGMENT.
6. CAST-IN-PLACE CONCRETE IS TO HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS AND CONFORM TO THE REQUIREMENTS OF ASTM C 94.
7. ITEMS REQUIRED FOR CERTIFICATION OF THE STORMWATER FACILITY INCLUDE, BUT ARE NOT LIMITED TO, RECIEPTS FOR ALL PURCHASED MATERIALS, PHOTOGRAPHS FOR ITEMS INSTALLED BELOW GRADE AND GEOTECHNICAL REPORTS FOR ALL TESTING CONDUCTED DURING CONSTRUCTION. CERTIFICATION REQUIREMENTS WILL BE OUTLINED IN WET POND PRE-CONSTRUCTION MEETING.

5 CD-9.0 WET POND NOTES

NTS

1. TESTS OF THE DEGREE (%) OF COMPACTION AND MATERIAL COMPOSITION OF THE EXISTING MATERIAL ADJACENT TO THE EXISITNG PRINCIPAL SPILLWAY PIPE SHALL BE PERFORMED AS A PART OF THE PERMITTEE'S NORMAL QUALITY CONTROL PROGRAM FOR THE CONSTRUCTION OF THE EMBANKMENT. TESTS SHALL BE CONDUCTED PRIOR TO THE INSTALLATION OF THE COMPACTED FILL AND THE CONTRACTOR SHALL COORDINATE THE INSPECTIONS. SHOULD THE RESULTS OF THE TESTS INDICATE THAT THE SPECIFIED DEGREE OF COMPACTION AND REQUIRED MATERIAL IS NOT PRESENT; THE PORTIONS OF THE DAM REPRESENTED BY SUCH TESTS SHALL BE REBUILT. ALL PORTIONS OF THE DAM SHALL ACHIEVE THE SPECIFIED MINIMUM DEGREE OF COMPACTION.
2. EMBANKMENT CONSTRUCTION, AND PIPE BACKFILL TO BE PERFORMED UNDER THE SUPERVISION OF A QUALIFIED GEOTECHNICAL ENGINEER, WHO IS REGISTERED AS A PROFESSIONAL ENGINEER IN THE STATE OF NORTH CAROLINA. THE GEOTECHNICAL ENGINEER MUST HAVE EXPERIENCE IN THE DESIGN AND CONSTRUCTION MONITORING OF DAMS OF THE SIZE AND SCOPE COVERED BY THESE STANDARDS AND GUIDELINES. CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF ALL REQUIRED INSPECTIONS WITH CIVIL AND GEOTECHNICAL ENGINEERS.
3. THE GEOTECHNICAL ENGINEER, AS DEFINED ABOVE, SHALL OBSERVE ALL ASPECTS OF THE CONSTRUCTION OF THE EMBANKMENT (I.E., PREPARATION OF THE FOUNDATION, INSTALLATION OF THE CUT-OFF TRENCH, INSTALLATION OF THE PRINCIPAL SPILLWAY PIPE, INSTALLATION OF THE INTERNAL DRAINAGE, INSTALLATION OF THE COMPACTED FILL, ETC.). THE FREQUENCY OF OBSERVATION AND TESTING MUST BE SUFFICIENT FOR THE GEOTECHNICAL ENGINEER TO STATE, IN HIS/HER PROFESSIONAL OPINION, THAT THE SPECIFIC ITEMS OBSERVED AND TESTED WERE INSTALLED IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DRAWINGS AND SPECIFICATIONS.
4. TESTS OF THE DEGREE (%) OF COMPACTION OF THE PLACED FILL IN THE DAM SHALL BE PERFORMED AS A PART OF THE PERMITTEE'S NORMAL QUALITY CONTROL PROGRAM FOR THE CONSTRUCTION OF THE DAM. TESTS SHALL BE CONDUCTED CONCURRENT WITH THE INSTALLATION OF THE COMPACTED FILL AND THE CONTRACTOR SHALL COORDINATE THE CONSTRUCTION OF THE DAM SO THAT THE TESTING CAN BE COMPLETED. SHOULD THE RESULTS OF THE TESTS INDICATE THAT THE SPECIFIED DEGREE OF COMPACTION HAS NOT BEEN OBTAINED; THE PORTIONS OF THE DAM REPRESENTED BY SUCH TESTS SHALL BE REWORKED OR REBUILT. ALL PORTIONS OF THE DAM SHALL ACHIEVE THE SPECIFIED MINIMUM DEGREE OF COMPACTION. ALL VISIBLE ORGANIC DEBRIS SUCH AS ROOTS AND LIMBS SHALL BE REMOVED FROM THE FILL MATERIAL PRIOR TO COMPACTION TO THE REQUIRED DENSITY. SOILS WITH ORGANIC MATTER CONTENT EXCEEDING 5% BY WEIGHT SHALL NOT BE USED. STONES GREATER THAN 3-INCH (IN ANY DIRECTION) SHALL BE REMOVED FROM THE FILL PRIOR TO CONSTRUCTION.
5. TREATMENT OF SEEPAGE AREAS, SUBGRADE PREPARATION, FOUNDATION DEWATERING, AND ROCK FOUNDATION PENETRATION (I.E. TREATMENT WITH SLUSH GROUTING, DENTAL CONCRETE, ETC.) MAY BE REQUIRED AT THE DISCRETION OF THE GEOTECHNICAL ENGINEER. ALL SUCH ACTIVITIES SHALL BE CLOSELY MONITORED AND DOCUMENTED BY THE GEOTECHNICAL ENGINEER DURING CONSTRUCTION.
6. FOUNDATION AREAS MAY REQUIRE UNDERCUTTING OF COMPRESSIBLE AND/OR UNSUITABLE SOILS IN ADDITION TO THAT INDICATED ON THE PLANS. ALL SUCH UNDERCUTTING SHALL BE PERFORMED AT THE DISCRETION OF THE GEOTECHNICAL ENGINEER AND SHALL BE MONITORED AND DOCUMENTED BY THE GEOTECHNICAL ENGINEER DURING CONSTRUCTION. IN NO CASE SHALL THERE BE AN ATTEMPT TO STABILIZE ANY PORTIONS OF THE FOUNDATION SOILS WITH CRUSHED STONE.

6 CD-9.0 EMBANKMENT TESTING, OBSERVATION AND CERTIFICATION

NTS

1. ALL FILL SOILS FOR EMBANKMENT SECTION SHALL BE CLEAN, IMPERMEABLE MATERIALS AND COMPACTED TO AT LEAST 98% STANDARD PROCTOR MAXIMUM DRY DENSITY, AT OPTIMUM MOISTURE CONTENT. EACH LAYER OF FILL SHALL BE COMPACTED AS NECESSARY TO OBTAIN THAT DENSITY, AND IS TO BE CERTIFIED BY THE GEOTECHNICAL ENGINEER. ALL COMPACTION IS TO BE DETERMINED BY AASHTO METHOD T-99 (STANDARD PROCTOR).
2. NO BLASTED MATERIALS SHALL BE USED IN THE EMBANKMENT CONSTRUCTION. SOILS SHALL NOT EXHIBIT SIGNIFICANT SHRINK/SWELL OR DISPERSIVE CHARACTERISTICS. ON-SITE GEOTECHNICAL ENGINEER SHALL APPROVE THE SOILS FOR PLACEMENT WITHIN THE EMBANKMENT SECTION. THE GEOTECHNICAL ENGINEER SHALL ALSO SPECIFY THE METHODS TO BE USED FOR PLACEMENT OF FILL. IF ADDITIONAL USES ARE PLANNED UPON THE EMBANKMENT SECTION (BUILDINGS, ETC.) THE GEOTECHNICAL ENGINEER SHALL SPECIFY SOILS SUITABLE FOR THAT ADDITIONAL USE.
3. IF SUITABLE MATERIAL IS NOT AVAILABLE ON-SITE, SUITABLE MATERIAL IS TO BE BROUGHT TO THE SITE AT NO ADDITIONAL COST TO THE OWNER.
4. CONTROLLED FILL, AS SPECIFIED BY THE GEOTECHNICAL ENGINEER, IN THE EMBANKMENT FILL SHALL BE PLACED IN 6" LOOSE LAYERS (3" LOOSE LAYERS WITHIN 3' ON EITHER SIDE OF THE PRINCIPAL SPILLWAY PIPE TO A DEPTH OF 2' OVER THE PIPE) AND SHALL BE COMPACTED TO A DENSITY OF NO LESS THAN 95% OF THE STANDARD PROCTOR MAXIMUM DENSITY AT A MOISTURE CONTENT OF + OR – TWO PERCENTAGE POINTS OF THE OPTIMUM MOISTURE CONTENT IN ACCORDANCE WITH ASTM D698.
5. FILL MATERIALS PLACED AT DENSITIES LOWER THAN THE SPECIFIED MINIMUM DENSITIES OR AT MOISTURE CONTENTS OUTSIDE THE SPECIFIED RANGE OR OTHERWISE NOT CONFORMING TO THE SPECIFIED REQUIREMENTS SHALL BE REMOVED AND REWORKED OR REMOVED AND REPLACED WITH ACCEPTABLE MATERIALS AT NO ADDITIONAL EXPENSE TO THE OWNER.
6. A KEY TRENCH IS TO BE PROVIDED IN ALL FILL AREAS AS DEEMED NECESSARY BY THE GEOTECHNICAL ENGINEER. TRENCH TO EXTEND A MINIMUM OF FIVE FEET BELOW EXISTING GRADE. SOILS AND COMPACTION FOR KEY TRENCH SHALL MEET ALL REQUIREMENTS OF #1 ABOVE.
7. FILL ADJACENT TO THE RISER AND PRINCIPAL SPILLWAY PIPE SHALL BE PLACED SO THAT LIFTS ARE AT THE SAME LEVEL ON BOTH SIDES OF THE STRUCTURES.
8. EARTHWORK COMPACTION WITHIN 3-FEET OF ANY STRUCTURES SHALL BE ACCOMPLISHED BY MEANS OF HAND TAMPERS, MANUALLY DIRECTED POWER TAMPERS OR PLATE COMPACTORS OR MINIATURE SELF-PROPELLED ROLLERS.
9. HEAVY EQUIPMENT SHALL NOT BE ALLOWED TO PASS OVER CAST-IN-PLACE STRUCTURES UNTIL ADEQUATE CURING TIME HAS ELAPSED.
10. ANY FILL LAYER THAT IS SMOOTH DRUM ROLLED TO REDUCE MOISTURE PENETRATION DURING A STORM EVENT SHALL BE PROPERLY SCARIFIED PRIOR TO THE PLACEMENT OF THE NEXT SOIL LIFT.
11. SURFACE WATER AND STREAM FLOW SHALL BE CONTINUOUSLY CONTROLLED THROUGHOUT CONSTRUCTION AND THE PLACEMENT OF CONTROLLED FILL.
12. THE BOTTOM OF THE POND AND THE EMBANKMENT SHALL HAVE AN INFILTRATION RATE OF LESS THAN 0.1 IN/HR. IF THE INFILTRATION RATE IS HIGHER, A NATURAL LINER (CLAY, MOST LIKELY) SHALL BE INSTALLED OVER THE ENTIRE POND FLOOR BELOW THE PERMANENT POOL.
13. 85% OF DAM EMBANKMENT AND DAM FOUNDATION, GROIN, TOE, AND ABUTMENT AREAS MUST ACHIEVE A HEALTHY STAND OF GRASS, AND ALL AREAS THAT HAVE NOT ACHIEVED A HEALTHY STAND OF GRASS MUST BE SEEDED AND MULCHED PRIOR TO OBTAINING A CERTIFICATE OF OCCUPANCY. NO TREES OF ANY TYPE MAY BE LOCATED ON THE BERM SECTION.

7 CD-9.0 DAM EMBANKMENT CONSTRUCTION STANDARDS

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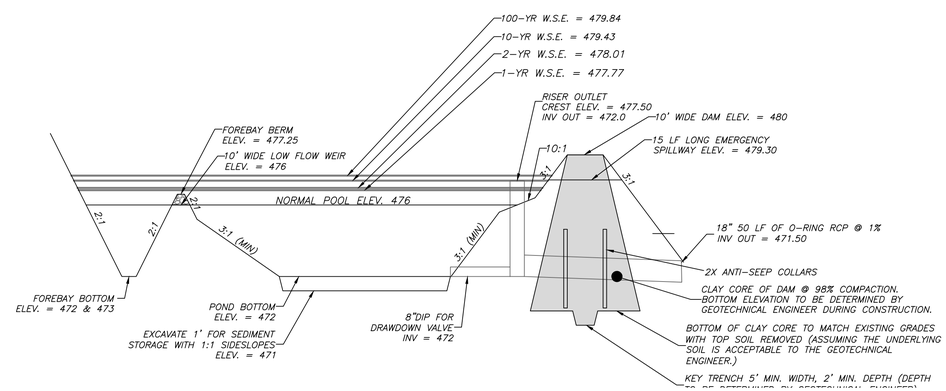

4 CD-9.0 WET POND SECTION A-A'

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NORTH CAROLINA PROFESSIONAL SEAL 23461 ENGINEER CHARLES W. HILL, JR. 10/14/19

Project

CAROLINA DONOR SERVICES

7000
MILLHOUSE ROAD
CHAPEL HILL, NC 27517

Job Number 1652

Drawn	MTC, WLR
Checked	WLR, CNH
Date	10/14/2019
Revisions	

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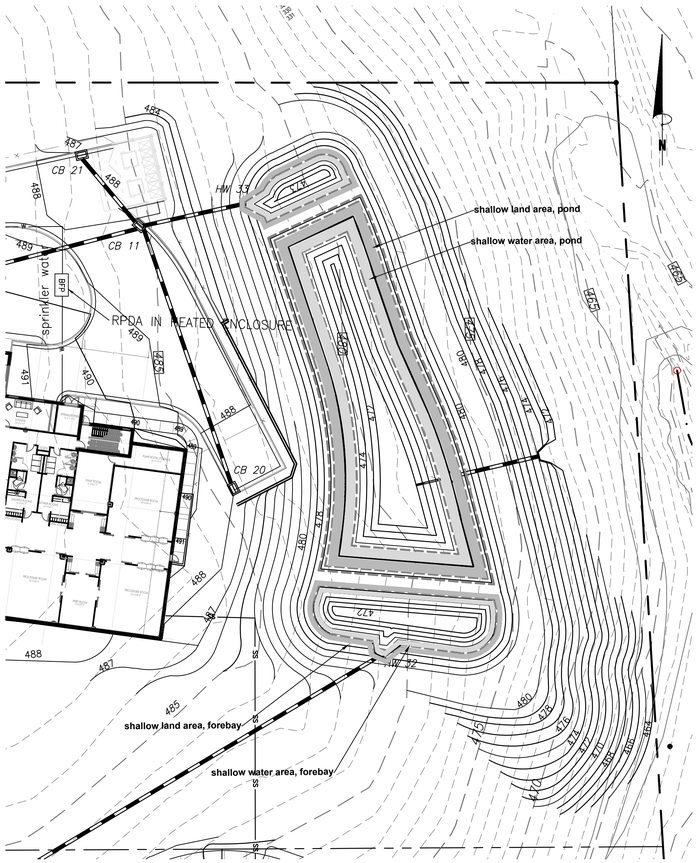
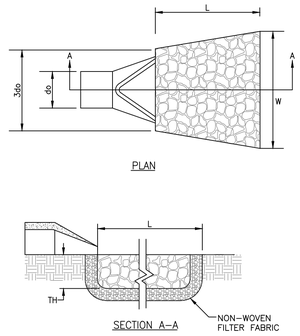
Sheet Title

WET POND DETAILS

Sheet Number

CD-9.0



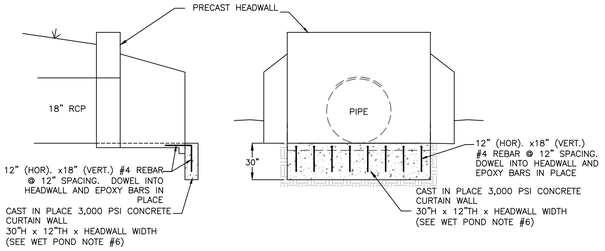


NOTES:

1. L IS THE LENGTH OF THE RIPRAP APRON.
2. TH=1.5 TIMES THE MAXIMUM STONE DIAMETER BUT NOT LESS THAN 6".
3. IN A WELL–DEFINED CHANNEL EXTEND THE APRON UP THE CHANNEL BANKS TO AN ELEVATION OF 6" ABOVE THE MAXIMUM TAILWATER DEPTH OR TO THE TOP OF THE BANK WHICHEVER IS LESS.
4. A NON–WOVEN FILTER FABRIC SHOULD BE INSTALLED BETWEEN THE RIPRAP AND SOIL FOUNDATION. FILTER FABRIC SHALL CONFORM TO AASHTO M–288 STANDARDS.
5. SEE SCHEDULE FOR RIPRAP SIZE, WIDTH, & LENGTH.

3 / CD-9.1 RIPRAP APRON

not to scale



2 / CD-9.1 CONCRETE CURTAIN WALL

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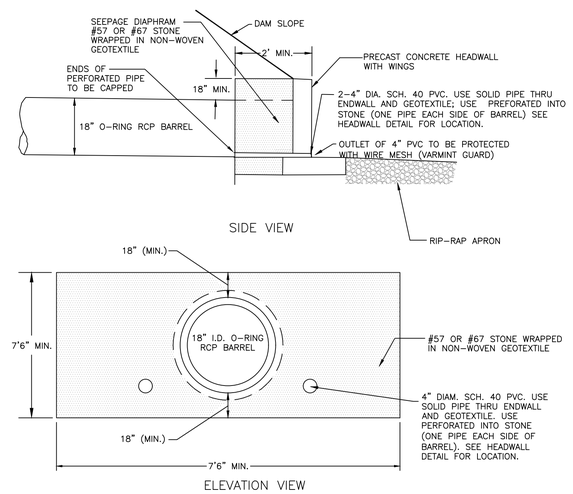

4 / CD-9.1 ANTI - SEEPAGE DIAPHRAGM

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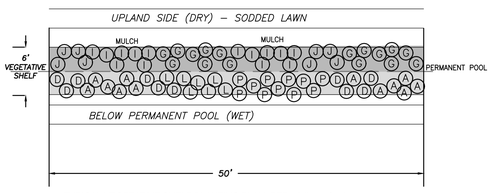
TYPICAL VEGETATIVE SHELF PLANTING PLAN (PER 50 linear feet) repeating pattern in wet pond



TYPICAL VEGETATIVE SHELF PLANTING PLAN (PER 50 linear feet) repeating pattern in forebays

Plants per 50 LF wet pond	Plants per 50 LF forebays	Qty	Sym	Botanic Name	Common Name	Installation Size
SHALLOW LAND AREA						
20 / 50 LF	16 / 50 LF	138	G	Carex elata 'Aurea'	Bowles Golden Sedge	1 qt
20 / 50 LF	13 / 50 LF	128	I	Iris virginiana	Blue Flag Iris	1 qt
9 / 50 LF	8 / 50 LF	65	J	Juncus effusus	Soft Rush	1 qt
SHALLOW WATER AREA						
13 / 50 LF	12 / 50 LF	86	A	Peltandra virginica	Arrow arum	1 qt
12 / 50 LF	11 / 50 LF	46	P	Pontadera cordata	Pickerel weed	1 qt
7 / 50 LF	7 / 50 LF	48	L	Saururus cernus	Lizard's Tail	1 qt
15 / 50 LF	10 / 50 LF	87	D	Sagittari latifolia	Duck potato	1 qt

SIZE REFERS TO SIZE AT TIME OF INSTALLATION. EACH INDIVIDUAL PLANT SHALL BE MULCHED WITH 3" OF TRIPLE SHREDDED HARDWOOD MULCH AT TIME OF INSTALLATION.

1 / CD-9.1 WET POND PLANTING NOTES

1"=20'

SEEDBED PREPARATION

1. CHISEL COMPACTED AREAS AND SPREAD TOPSOIL 4 INCHES DEEP TO FORM TOP LAYER OF EMBANKMENT AND WET POND.
2. REMOVE ALL LOOSE ROCK, ROOTS, AND OTHER OBSTRUCTIONS LEAVING SURFACE REASONABLY SMOOTH AND UNIFORM.
3. APPLY AGRICULTURAL LIME UNIFORMLY AS NEEDED AND MIX WITH SOIL.
4. CONTINUE TILLAGE UNTIL A WELL–PULVERIZED, FIRM REASONABLY UNIFORM SEEDBED IS PREPARED 4 INCHES DEEP.
5. PERFORM FINAL GRADING OF WET POND AND EMBANKMENT AREA
6. SEED ON A FRESHLY PREPARED SEEDBED AND COVER. INSTALL PLANTS.
7. MULCH IMMEDIATELY AFTER SEEDING AND ANCHOR MULCH.
8. INSPECT ALL SEEDBED AREAS AND MAKE NECESSARY REPAIRS OR RESEEDINGS WITHIN THE PLANTING SEASON, IF POSSIBLE. IF STAND SHOULD BE OVER 80% DAMAGED, RE–ESTABLISH FOLLOWING ORIGINAL LIME AND SEEDING RATES. SEED LIGHTLY WITH SEEDING EQUIPMENT OR CULTIPACK AFTER SEEDING.
9. 85% OF THE DAM EMBANKMENT, TOE, AND ABUTMENT AREAS MUST ACHIEVE A HEALTHY STAND OF GRASS PRIOR TO OBTAINING POND CERTIFICATION.

SEEDING AND SODDING

LAWN TYPE: ALL SODDED AND SEEDED LAWN AREAS SHALL BE AN IMPROVED TURF TYPE TALL FESCUE, CONSISTING OF A BLEND OF 3 DROUGHT TOLERANT CULTIVARS.

PERMANENT SEEDING SCHEDULE

SEEDING DATE	SEEDING MIXTURE	APPLICATION RATE
AUG 25 – OCT (BEST)	TALL FESCUE	200 LBS/AC
FEB – APR 15 (POSSIBLE)		

SOIL AMENDMENTS

APPLY LIME AND FERTILIZER ACCORDING TO SOIL TESTS, OR APPLY 4000 LB/ACRE GROUND AGRICULTURAL LIMESTONE.

MULCH

APPLY 4000 LB/AC STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE

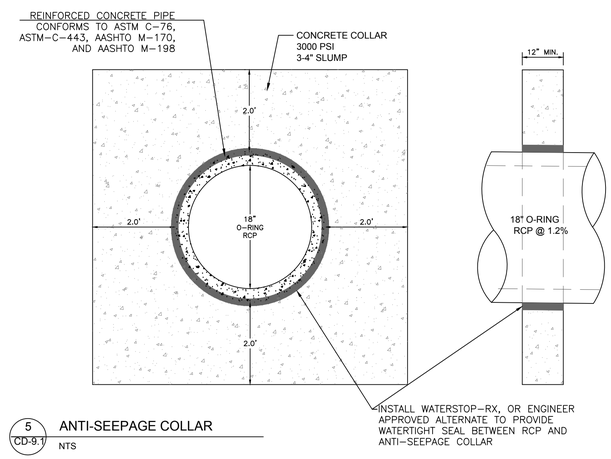
INSPECT AND REPAIR MULCH FREQUENTLY. MOW REGULARLY TO A HEIGHT OF 4 INCHES

NURSE PLANTS

BETWEEN MAY 1 AND AUGUST 15, ADD 15 LB/ACRE SUDAN GRASS OR 10 LB/ACRE GERMAN MILLET, BEFORE MAY 1, OR AFTER AUG 15, ADD 40 LB/ACRE RYE (GRAIN)

WET POND NOTES

1. LANDSCAPE CONTRACTOR TO PROVIDE OWNER WITH A ONE–YEAR WARRANTY FOR WET POND PLANTINGS.
2. EACH INDIVIDUAL PLANT SHALL BE MULCHED WITH 3" OF TRIPLE SHREDDED HARDWOOD MULCH AT TIME OF INSTALLATION.
3. WET POND PLANTINGS SHALL BE PLANTED IN 3" OF TOPSOIL.



5 / CD-9.1 ANTI-SEEPAGE COLLAR

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