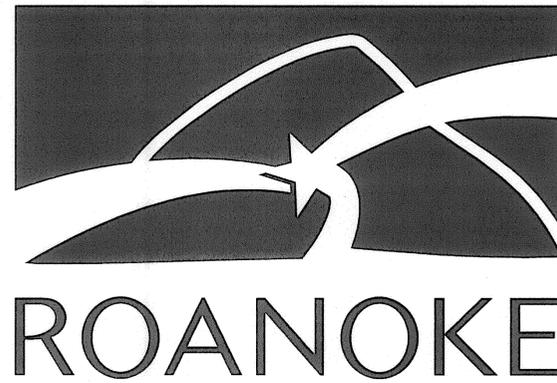
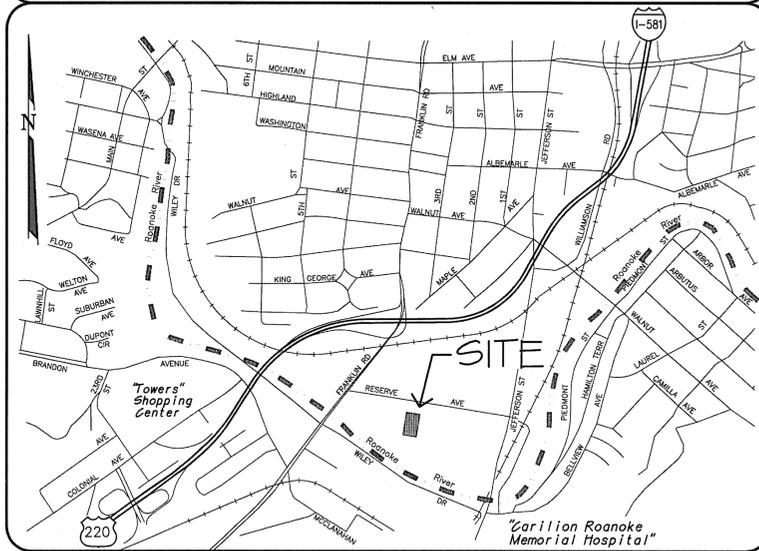


PROJECT LOCATION MAP



OFFICE OF THE PARKS AND GREENWAY PLANNER
 215 CHURCH AVENUE, SW
 ROOM 301
 ROANOKE, VIRGINIA 24011-1587
 PHONE: (540) 853-1166
 FAX: (540) 853-1287

INDEX OF SHEETS

SHEET #	TITLE
C-1	CIVIL TITLE SHEET
C-2	DIMENSIONAL PLAN
C-3	GRADING & UTILITY PLAN
C-4	EROSION & SEDIMENT CONTROL PLAN
C-5	VIRGINIA E.S.C. REGULATIONS
C-6	GENERAL PERMIT NO.: VAR10 - SUPPLEMENTAL INFORMATION
C-7	POLLUTION PREVENTION PLAN
C-8	VIRGINIA E.S.C. DETAILS
C-9	LANDSCAPE PLAN
C-10	CIVIL DETAILS
C-11	CIVIL DETAILS & NOTES
C-12	BIORETENTION FILTER DETAILS

LEGEND

ABBREVIATIONS

AHFH	ARROW HEAD TOP OF FIRE HYDRANT	LT	LEFT
APPROX	APPROXIMATE	MH	MANHOLE
ASPH	ASPHALT	MIN	MINIMUM
BC	BOTTOM OF CURB	PROP	PROPOSED
BIT	BITUMINOUS	PUE	PUBLIC UTILITY EASEMENT
BLDG	BUILDING	PVMT	PAVEMENT
BLK	BLOCK	R	RADIUS
BM	BENCHMARK	RT	RIGHT
BW	BOTTOM OF WALL	R/W	RIGHT OF WAY
C&G	CURB & GUTTER	REQD	REQUIRED
CMP	CORRUGATED METAL PIPE	SAN	SANITARY
CONC	CONCRETE	SD	STORM DRAIN
COR	CORNER	SDMH	STORM DRAIN MANHOLE
DI	DROP INLET	SS	SANITARY SEWER
DIA	DIAMETER	SSMH	SANITARY SEWER MANHOLE
EG	EDGE OF GRAVEL	STA	STATION
EP	EDGE OF PAVEMENT	STD	STANDARD
ELEC	ELECTRIC	TC	TOP OF CURB
ELEV	ELEVATION	TEL	TELEPHONE
ENTR	ENTRANCE	TW	TOP OF WALL
EW	ENDWALL	TYP	TYPICAL
EX	EXISTING	VESCH	VIRGINIA EROSION & SEDIMENT CONTROL HANDBOOK
FF	FINISHED FLOOR	VOOT	VIRGINIA DEPARTMENT OF TRANSPORTATION
FG	FINISH GRADE	VERT	VERTICAL
INV	INVERT	YD	YARD
HPT	HIGH POINT		
IP	IRON PIN		

SYMBOLS

EXISTING	NEW	
100.5	100.5	SPOT ELEVATION
--- 100 ---	--- 100 ---	CONTOURS
=== 8"SS ===	=== 8"SS ===	SANITARY SEWER LINE
--- 4"W ---	--- 4"W ---	WATERLINE
=== 8"SD ===	=== 8"SD ===	STORM DRAIN
--- 2"G ---	--- 2"G ---	GAS LINE
--- OHE ---	--- OHE ---	OVERHEAD ELECTRIC LINE
--- OHT ---	--- OHT ---	OVERHEAD TELEPHONE LINE
--- CATV ---	--- CATV ---	OVERHEAD CABLE TELEVISION LINE
--- UE --- UT ---	--- UE --- UT ---	UNDERGROUND TEL OR ELEC LINE
--- W/G ---	--- W/G ---	WATER OR GAS METER
--- V ---	--- V ---	VALVE
--- F.H. ---	--- F.H. ---	FIRE HYDRANT
--- M ---	--- M ---	MANHOLE
--- C.O. ---	--- C.O. ---	CLEANOUT
--- DI ---	--- DI ---	DROP INLET (CURB OR GRATE)
--- U.P. ---	--- U.P. ---	UTILITY POLE, GUY & ANCHOR
--- D/S ---	--- D/S ---	DITCH OR SWALE
--- CL ---	--- CL ---	CENTERLINE OR BASELINE
--- P ---	--- P ---	PROPERTY LINE
--- S.T.P. ---	--- S.T.P. ---	SURVEY TRAVERSE POINT
--- DA ---	--- DA ---	DIRECT ANGLE
--- Y.L. ---	--- Y.L. ---	YARD LIGHTING
--- Y.H. ---	--- Y.H. ---	YARD HYDRANT
--- F ---	--- F ---	FENCE

PROJECT NAME

**TENNIS COURTS
 RIVERS EDGE PARK-NORTH**

TAXMAP #1040202
 RESERVE AVENUE
 ROANOKE, VA 24016

PLAN NUMBER: _____
 CITY PLANNING NUMBER: CP140064

APPROVED FOR CONSTRUCTION

Donni Howard
 PARKS AND GREENWAY PLANNER

12/3/15
 DATE

Frank B. Caldwell
 DIRECTOR OF PARKS AND RECREATION

12/4/15
 DATE

J.P. Bowman
 ASSISTANT CITY MANAGER

12/7/15
 DATE

CONSTRUCTION PROCEDURE REQUIREMENTS

- NOTICE: ALL LANDOWNERS, DEVELOPERS AND CONTRACTORS FAILURE TO COMPLY WITH THE CONSTRUCTION PROCEDURE REQUIREMENTS LISTED BELOW MAY RESULT IN THE COSTLY REMOVAL OF STRUCTURES, TIME DELAYS OR THE ISSUANCE OF A STOP WORK ORDER.
- RIGHT-OF-WAY EXCAVATION PERMIT -PRIOR TO THE COMMENCEMENT OF ANY DIGGING, ALTERATION OR CONSTRUCTION WITHIN THE PUBLIC RIGHT-OF-WAY (STREETS, ALLEYS, PUBLIC EASEMENTS), A RIGHT-OF-WAY EXCAVATION PERMIT SHALL BE APPLIED FOR AND OBTAINED BY THE CONTRACTOR FROM THE CITY OF ROANOKE.
 - LAND DISTURBANCE PERMIT -AN APPROVED EROSION AND SEDIMENT CONTROL PLAN FOR ANY BORROW/FILL SITES ASSOCIATED WITH THE PROJECT MUST BE SUBMITTED PRIOR TO THE ISSUANCE OF A LAND DISTURBANCE PERMIT.
 - PLANS AND PERMITS -A COPY OF THE PLANS AS APPROVED BY THE CITY (SIGNED BY THE PROPER CITY OFFICIALS) AND ALL PERMITS ISSUED BY THE CITY SHALL BE AVAILABLE AT THE CONSTRUCTION SITE AT ALL TIMES OF ONGOING CONSTRUCTION.
 - LOCATION OF UTILITIES -THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION.
 - CONSTRUCTION ENTRANCE -THE CONTRACTOR SHALL INSTALL AN ADEQUATE CONSTRUCTION ENTRANCE FOR ALL CONSTRUCTION RELATED EGRESS FROM THE SITE. SIZE AND COMPOSITION OF CONSTRUCTION ENTRANCE SHALL BE AS SHOWN ON THE PLANS.
 - STREETS TO REMAIN CLEAN -IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO INSURE THAT THE PUBLIC STREET ADJACENT TO THE CONSTRUCTION ENTRANCE REMAINS FREE OF MUD, DIRT, DUST, AND/OR ANY TYPE OF CONSTRUCTION MATERIALS OR LITTER AT ALL TIMES.
 - BARRICADES/DITCHES -THE CONTRACTOR SHALL MAINTAIN THE INTEGRITY OF ALL EXCAVATED DITCHES AND SHALL FURNISH AND ENSURE THAT ALL BARRICADES PROPER AND NECESSARY FOR THE SAFETY OF THE PUBLIC ARE IN PLACE.
 - SEWER AND PAVEMENT REPLACEMENT -CONSTRUCTION OF SANITARY SEWERS AND THE REPLACEMENT OF PAVEMENT SHALL BE IN ACCORDANCE WITH APPROVED STANDARDS AND SPECIFICATIONS OF THE CITY OF ROANOKE AND THE WESTERN VIRGINIA WATER AUTHORITY.
 - APPROVED PLANS/CONSTRUCTION CHANGES -ANY CHANGE OR VARIATION FROM CONSTRUCTION DESIGN AS SHOWN ON THE OFFICIALLY APPROVED PLANS SHALL BE APPROVED BY THE EROSION AND SEDIMENT CONTROL AGENT PRIOR TO SAID CHANGES OR VARIATION IN CONSTRUCTION BEING MADE.
 - FINAL ACCEPTANCE/CITY -THE OWNER OR DEVELOPER SHALL FURNISH THE CITY OF ROANOKE'S PLANNING BUILDING AND DEVELOPMENT DEPARTMENT WITH A FIELD SURVEYED FINAL CORRECT SET OF AS-BUILT PLANS OF THE NEWLY CONSTRUCTED STORM DRAIN AND/OR STORMWATER MANAGEMENT FACILITIES PRIOR TO FINAL ACCEPTANCE AND ISSUANCE OF A CERTIFICATE OF OCCUPANCY BY THE CITY. AS-BUILT PLANS SHALL BE PROVIDED IN THE STATE PLANE VIRGINIA SOUTH COORDINATE SYSTEM, NAD 1983, FIPS 4502 FEET, US SURVEY FEET, DATUM NAD 83, IN THE FORM OF 1-PAPER COPY AND 1-DIGITAL AUTOCAD FILE.

CONSULTING ENGINEERS

CWA
CALDWELL WHITE ASSOCIATES
 ENGINEERS / SURVEYORS / PLANNERS

4203 MELROSE AVENUE, N.W.
 P.O. BOX 6260
 ROANOKE, VIRGINIA 24017
 (540) 366-3400
 EMAIL: CWAROANOKE@AOL.COM

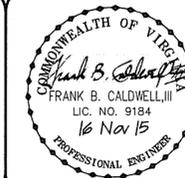
Designed By: J.V.Judy

Checked By: F.B.Caldwell

Revised: 11/16/15

W.O. # 14-0061

N.B. # RKE. CITY #10



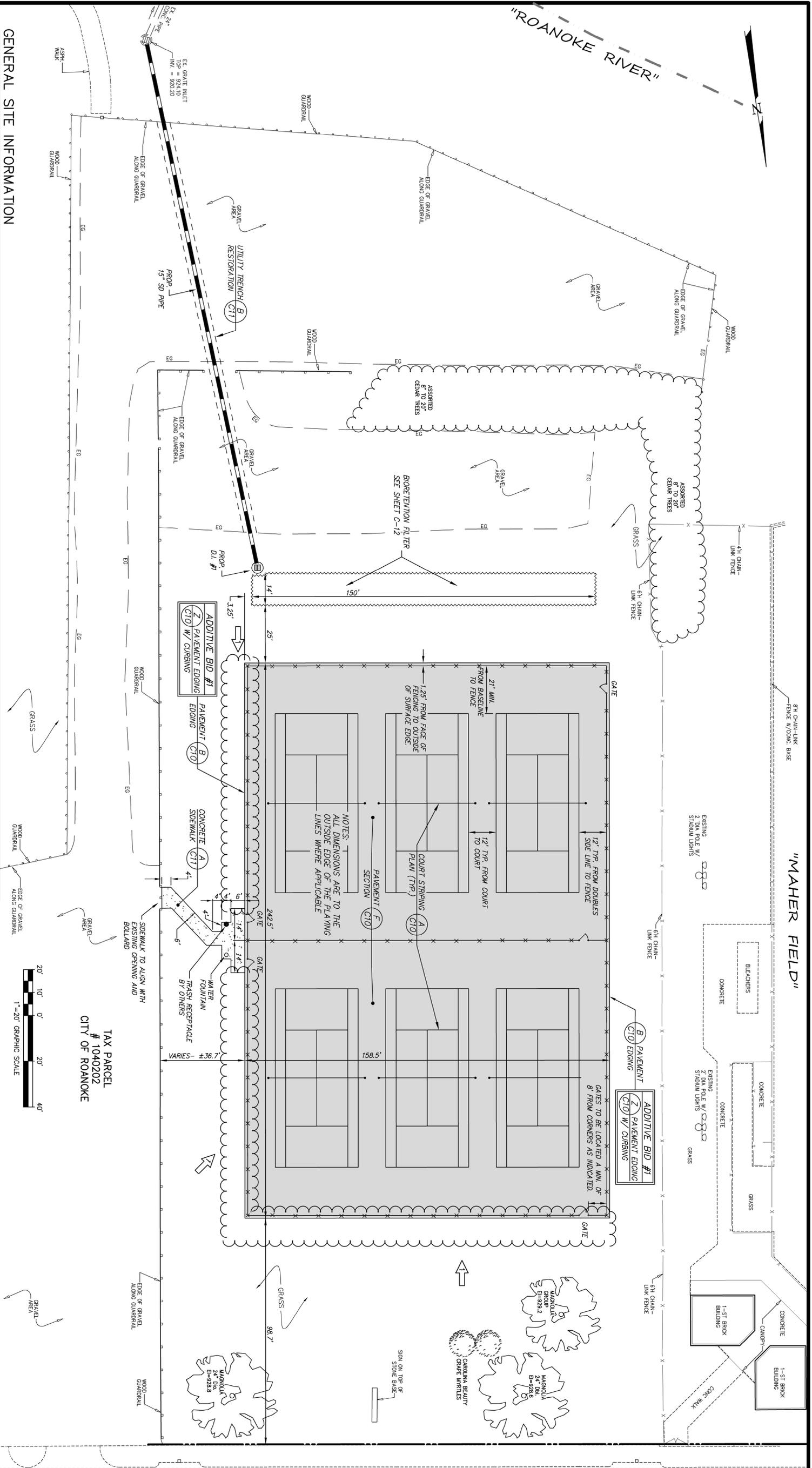
SHEET

C-1

TENNIS COURTS - RIVERS EDGE PARK-NORTH

"ROANOKE RIVER"

"MAHER FIELD"



RESERVE AVENUE, S.W.
VARIABLE WIDTH R/W

GENERAL SITE INFORMATION

TAX PARCEL: 1040202
 OWNER: CITY OF ROANOKE MAHER FIELDS
 215 RESERVE AVENUE, SW
 ROANOKE, VIRGINIA
 ZONING: INPUD
 CURRENT USE: PARK & RECREATION AREAS
 451-COM/INDUST-CITY
 PROPOSED USE OF NEW CONSTRUCTION: RECREATION, OUTDOOR TENNIS COURT FACILITIES
 LEGAL DESCRIPTION: PLEASANT AVENUE & ROANOKE RIVER ROANOKE INDUSTRIAL & AGRICULTURAL ASSN. DB, 664 Pg. 54
 ACREAGE / SF: 31,989 Ac. / 1,389,090 sf
 FRONTAGE: 570.8 ft.
 YEAR CONSTRUCTED: 1996 - EXISTING FIELD HOUSES
 BUILDING AREA: 1,794 sf

FLOODPLAIN INFORMATION:

Property lies completely within the Floodway and Zone "AE" as identified on FEMA Flood Insurance Rate Map, Panel S18024G, Revised September 28, 2007. NO NEW FILL MATERIAL IS PROPOSED WITHIN THE FLOODWAY.
 MAXIMUM IMPERVIOUS SURFACE AREA RATIO (EXCLUDING PARKS): 80%
 EXISTING IMPERVIOUS AREA RATIO: 413%
 PROPOSED IMPERVIOUS AREA RATIO: 416%
 PARKING PROVIDED: NO ADDITIONAL PARKING IS PROPOSED. EXISTING FACILITIES ON THE SUBJECT PROPERTY INCLUDE 41 PAVED SPACES (incl. 1 Handicap) and 4300 ON THE GRAVEL AREAS.
 SITE LIGHTING: Existing facilities are currently lighted and NO NEW FIXTURES ARE PROPOSED AT THIS TIME.
 TREE CANOPY: SEE CALCULATIONS ON THE LANDSCAPE PLAN SHEET C-9

THE OWNERS OF THE SUBJECT PROPERTY HEREBY ACKNOWLEDGE THAT THE PURPOSE OF THIS PLAN IS TO CONSTRUCT A TENNIS COURT FACILITY ONLY AND DOES NOT INCLUDE ANY BUILDINGS, INSTALLATION OF THE PROPOSED CHAIN-LINK FENCE.

1. THE PROJECT WILL REQUIRE A SEPARATE PERMIT FOR THE INSTALLATION OF THE PROPOSED CHAIN-LINK FENCE.
2. THIS PROJECT DOES NOT INCLUDE ANY RELOCATION OR INSTALLATION OF ANY MECHANICAL EQUIPMENT FOR THE EXISTING BUILDINGS.
3. THIS PROJECT DOES NOT INCLUDE ANY RELOCATION OR INSTALLATION OF ANY SOLID WASTE DISPOSAL DUMPSTERS.
4. THIS PROJECT DOES NOT INCLUDE ANY RELOCATION OR INSTALLATION OF ANY BUILDING UTILITY SERVICE LINES OR LATERALS, (I.E. ELECTRIC, TELEPHONE, ETC.)
5. THIS PROJECT DOES NOT INCLUDE ANY RELOCATION OR INSTALLATION OF ANY OUTDOOR LIGHTING. (NOTE UNDERGROUND CONDUITS ARE BEING PROVIDED TO ALLOW FUTURE SERVICE EXTENSION TO THE FUTURE LIGHTS INDICATED.)

ENGINEER'S NOTES

CAUDWELL WHITE ASSOCIATES ASSUMES NO RESPONSIBILITY FOR ADOPTION OF PLANS OR FOR INFORMATION ON PLANS UNTIL SUCH PLANS HAVE BEEN APPROVED BY THE REQUIRED PUBLIC AGENCIES.
 ANY WORK COMMENCED ON A PROJECT PRIOR TO PLAN APPROVAL IS AT THE SOLE RISK OF THE OWNER.
 CAUDWELL WHITE ASSOCIATES DOES NOT GUARANTEE THE COMPLETION OR QUALITY OF REFORMATION OF THE CONTRACTS BY CONTRACTORS OR OTHER THIRD PARTIES.
 SOURCE OF TOPOGRAPHIC MAPPING IS A FIELD SURVEY BY CAUDWELL WHITE ASSOCIATES DATED: AUGUST, 2014
 BOUNDARY DATA SHOWN IS FROM FIELD SURVEY BY CAUDWELL WHITE ASSOCIATES DATED: AUGUST, 2014
 THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY UPON DISCOVERY OF ANY SITE CONDITIONS THAT WILL AFFECT THE INSTALLATION OF PROPOSED IMPROVEMENTS.

DIMENSIONAL PLAN

CITY OF ROANOKE
 DEPARTMENT OF PARKS and RECREATION
 PROPOSED TENNIS COURTS
 SITUATE RIVERS EDGE PARK - NORTH
 RESERVE AVENUE, SW
 ROANOKE CITY, VIRGINIA
 CAUDWELL WHITE ASSOCIATES
 ENGINEERS / SURVEYORS / PLANNERS
 4309 MEDICOR AVENUE, N.W.
 ROANOKE, VIRGINIA 24017
 EMAIL: CWA@CAUDWELLWHITE.COM

11/16/15 - REMOVE PERIMETER SIDEWALKS & COURT EDGING

COMMONWEALTH OF VIRGINIA
 FRANK B. CAUDWELL III
 LIC. NO. 9184
 16 Nov 15
 PROFESSIONAL ENGINEER

Designed: A.J.W.
 Checked: F.B.C.
 Date: 05/29/15
 Scale: 1"=20'
 For Parcel: 1040202
 NB. No.: REC CITY #10
 W.O. No.: 14-0061

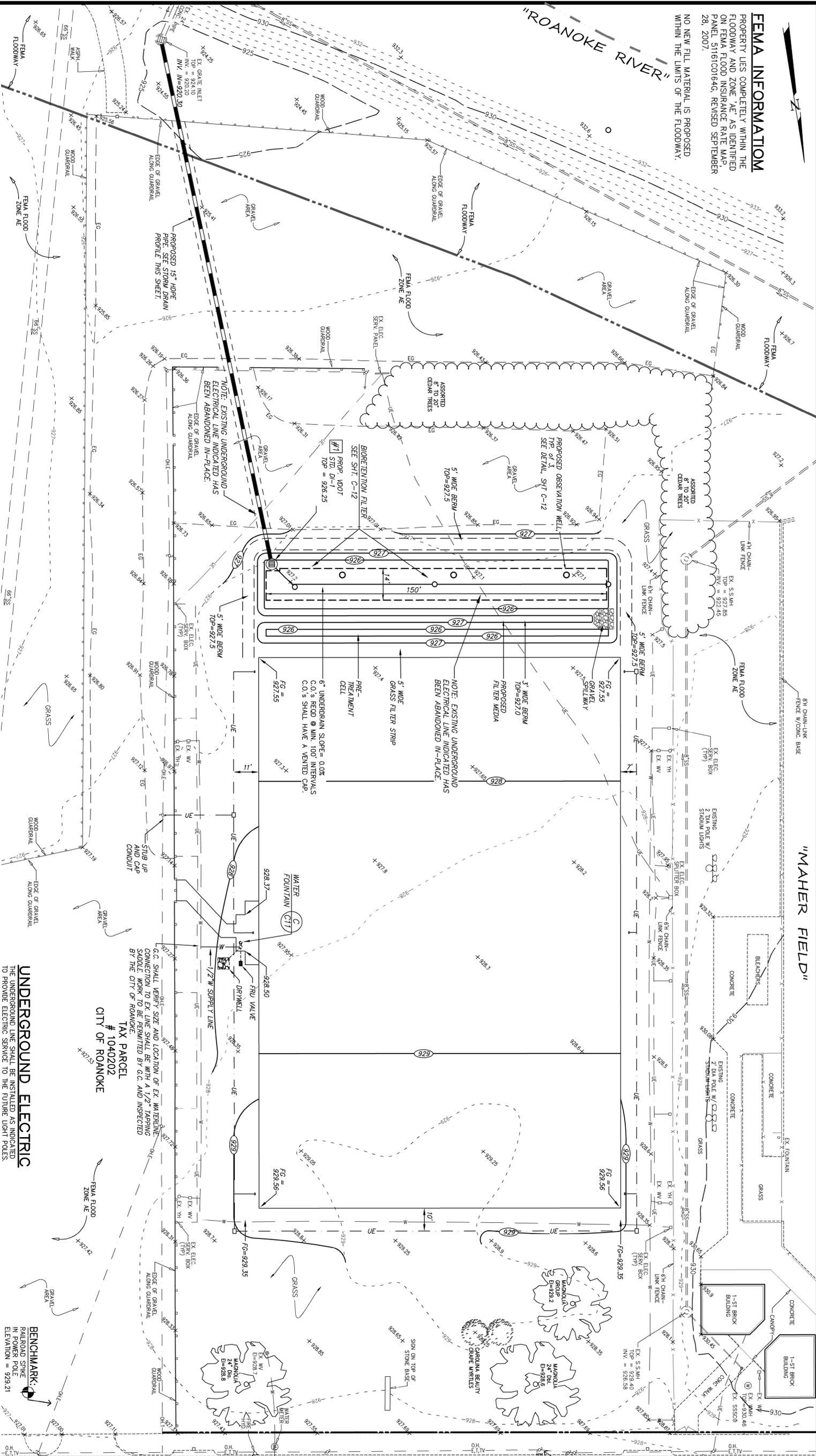
FEMA INFORMATION

PROPERTY LIES COMPLETELY WITHIN THE FLOODWAY AND ZONE "AET" AS IDENTIFIED ON FEMA FLOOD INSURANCE RATE MAP, PANEL 51161001646, REVISED SEPTEMBER 28, 2007.

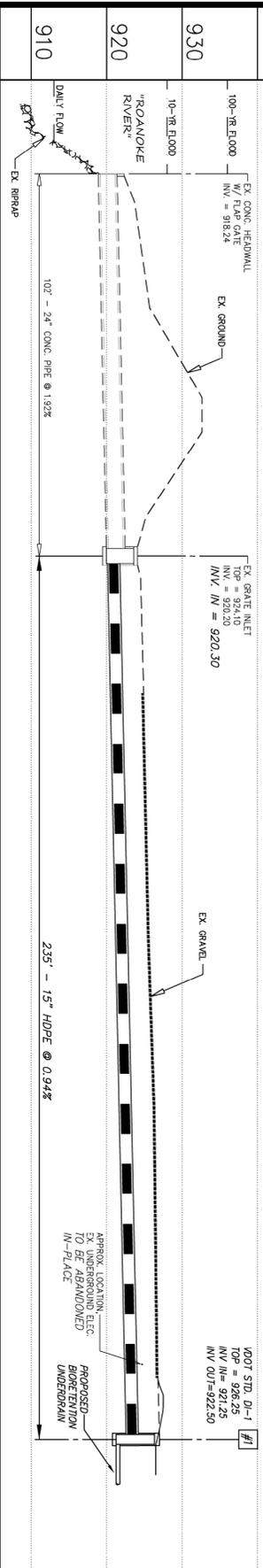
NO NEW FILL MATERIAL IS PROPOSED WITHIN THE LIMITS OF THE FLOODWAY.

"ROANOKE RIVER"

"MAHER FIELD"



STORM DRAIN PROFILE



UNDERGROUND ELECTRIC

1. THE UNDERGROUND LINE SHALL BE INSTALLED AS INDICATED TO PROVIDE ELECTRIC SERVICE TO THE FUTURE LIGHT POLES.
2. THE LINE SHALL BE A MIN. 3" DIAMETER SCHEDULE 40 PVC PIPE W/PULL STRINGS.
3. MINIMUM DEPTH OF COVER SHALL BE 24".
4. ALL TIES SHALL BE 3"x3"x3".
5. ALL 90-DEGREE ELBOWS SHALL BE LONG-SWEEP.
6. VDOT STD. 88-S1 JUNCTION BOXES SHALL BE INSTALLED WHERE INDICATED.
7. STUDS TO THE POLE LOCATIONS SHALL BE STAKED BY THE ELECTRICAL CONTRACTOR AND COMPARED BY THE DEPARTMENT OF PARKS AND RECREATION.
8. THE MOST CURRENT LIGHTING PLANS PROVIDED BY THE DEPARTMENT SHALL BE INSTALLED PRIOR TO INSTALLATION OF ANY CONCRETE WORK FOR THE FENCING, COURT OR SIDEWALKS.
9. DETECTABLE WARNING TAPE SHALL BE INSTALLED A MINIMUM OF 12 INCHES ABOVE THE CONDUIT AND A MINIMUM OF 6 INCHES BELOW FINAL GRADE.

TAX PARCEL #1040202 CITY OF ROANOKE

BENCHMARK: RAILROAD SPIKE IN POWER POLE ELEVATION = 929.21

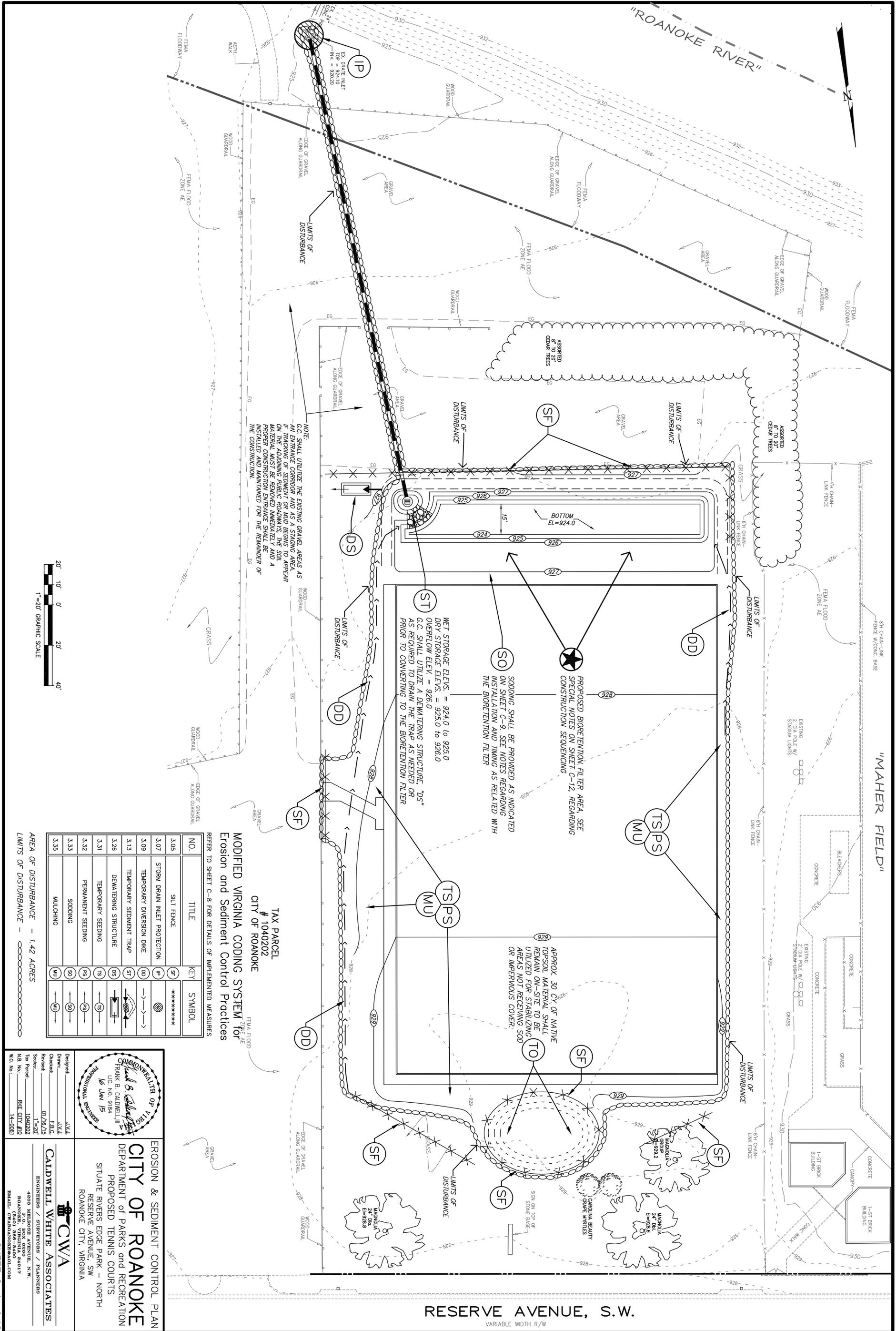
RESERVE AVENUE, S.W. VARIABLE WIDTH R/W



CADWELL WHITE ASSOCIATES
 ENGINEERS / SURVEYORS / PLANNERS
 4309 MEDICOR AVENUE, N.W.
 ROANOKE, VIRGINIA 24017
 EMAIL: CWA@CADWELLWHITE.COM

Designed: A.J.L.
 Checked: F.B.C.
 Released: 11/16/15
 Scale: 1"=20'
 For Parcel: 1040202
 NS. No.: REC CITY #10
 W.O. No.: 14-0061

CITY OF ROANOKE
 DEPARTMENT OF PARKS and RECREATION
 PROPOSED TENNIS COURTS
 SITUATE RIVERS EDGE PARK - NORTH
 RESERVE AVENUE, SW
 ROANOKE CITY, VIRGINIA



"ROANOKE RIVER"

"MAHER FIELD"

RESERVE AVENUE, S.W.
VARIABLE WIDTH R/W

NOTE:
G.C. SHALL UTILIZE THE EXISTING GRAVEL AREAS AS AN ENTRANCE CORRIDOR AND AS A STAGING AREA. IF TRACKING OF SEDIMENT OR MUD BEGINS TO APPEAR ON THE ADJACENT PUBLIC ROADWAYS, THE SOIL MATERIAL MUST BE REMOVED IMMEDIATELY AND A INSTALLATION AND MAINTENANCE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

WET STORAGE ELEV. = 924.0 TO 925.0
DRY STORAGE ELEV. = 925.0 TO 926.0
OVERFLOW ELEV. = 926.0
G.C. SHALL UTILIZE A DEWATERING STRUCTURE, "DS" AS REQUIRED TO DRAIN THE TRAP AS NEEDED OR PRIOR TO CONVERTING TO THE BIORETENTION FILTER

SODDING SHALL BE PROVIDED AS INDICATED ON SHEET C-9. SEE NOTES REGARDING INSTALLATION AND TIMING AS RELATED WITH THE BIORETENTION FILTER

PROPOSED BIORETENTION FILTER AREA. SEE SPECIAL NOTES ON SHEET C-12 REGARDING CONSTRUCTION SEQUENCING

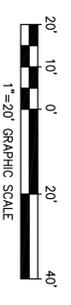
APPROX. 30 CY OF NATIVE TOPSOIL MATERIAL SHALL REMAIN ON-SITE TO BE UTILIZED FOR STABILIZING SOD AREAS NOT RECEIVING SOD OR IMPERVIOUS COVER.

TAX PARCEL # 1040202
CITY OF ROANOKE
MODIFIED VIRGINIA CODING SYSTEM for Erosion and Sediment Control Practices

REFER TO SHEET C-8 FOR DETAILS OF IMPLEMENTED MEASURES

NO.	TITLE	KEY	SYMBOL
3.05	SILT FENCE	SF	*****
3.07	STORM DRAIN INLET PROTECTION	IP	⊙
3.09	TEMPORARY DIVERSION DIKE	DD	→
3.13	TEMPORARY SEDIMENT TRAP	ST	⊞
3.26	DEWATERING STRUCTURE	DS	⊞
3.31	TEMPORARY SEEDING	TS	⊞
3.32	PERMANENT SEEDING	PS	⊞
3.33	SODDING	SO	⊞
3.35	MULCHING	MU	⊞

AREA OF DISTURBANCE - 1.42 ACRES
LIMITS OF DISTURBANCE -



COMMONWEALTH OF VIRGINIA
Professional Engineer
FRANK B. CALDWELL III
LIC. NO. 9184
1/8 JAN 15

EROSION & SEDIMENT CONTROL PLAN
CITY OF ROANOKE
DEPARTMENT OF PARKS and RECREATION
PROPOSED TENNIS COURTS
SITULATE RIVERS EDGE PARK - NORTH
RESERVE AVENUE, SW
ROANOKE CITY, VIRGINIA

CWA
CADWELL WHITE ASSOCIATES
ENGINEERS / SURVEYORS / PLANNERS
4805 MEDFORD AVE., SUITE 100, N.W.
ROANOKE, VIRGINIA 24017
EMAIL: CWA@CWAASSOCIATES.COM

Designed: AXL
Checked: F.B.C.
Revised: 01/16/15
Scale: 1"=20'
For Parcel: 1040202
NB. NO.: RCE CITY #10
WO. NO.: 14-0061

THE FOLLOWING ARE REQUIREMENTS AND DOCUMENTATION PER THE GENERAL PERMIT NO. VARIO, GENERAL VPDES PERMIT FOR DISCHARGES OF STORMWATER FROM CONSTRUCTION ACTIVITIES, PART II, STORMWATER POLLUTION PREVENTION PLAN (SWPPP):

1. GENERAL INFORMATION:
 - a. Signed copy of the registration statement, VARIO, shall be kept with these documents and other associated plans, calculations, log book, etc.
 - b. Notice of Coverage: UPON RECEIPT FROM THE COMMONWEALTH OF VIRGINIA, A COPY OF THE NOTICE OF COVERAGE SHALL BE KEPT WITH THESE DOCUMENTS AND ANY OTHER ASSOCIATED PLANS, CALCULATIONS, LOG BOOK, ETC.
 - c. VPDES Permit: UPON RECEIPT FROM THE COMMONWEALTH OF VIRGINIA, A COPY OF THE GENERAL VPDES PERMIT FOR DISCHARGES OF STORMWATER FROM CONSTRUCTION ACTIVITIES SHALL BE KEPT WITH THESE DOCUMENTS AND ANY OTHER ASSOCIATED PLANS, CALCULATIONS, LOG BOOK, ETC.
 - d. Nature of the Construction Activity: REFER TO THE SOIL EROSION CONTROL MAINTENANCE SHEET C-5.
- e. Legible Site Plan:
 - (1) REFER TO SHEET C-3 FOR THE POST-DEVELOPMENT GRADING PLAN. DIRECTION OF STORMWATER FLOW IS PERPENDICULAR TO THE PROPOSED CONTOURS.
 - (2) REFER TO SHEET C-4 FOR THE LIMITS OF LAND DISTURBANCE.
 - (3) REFER TO SHEET C-4 FOR THE LOCATIONS OF ALL PROPOSED EROSION & SEDIMENT CONTROL MEASURES.
 - (4) THERE ARE NO SURFACE WATERS LOCATED WITHIN THE LIMITS OF LAND DISTURBANCE.
 - (5) THE LOCATION OF CONCENTRATED STORMWATER CREATED FROM THIS PROJECT DISCHARGE INTO AN EXISTING PUBLIC STORM PIPE SYSTEM WHICH DISCHARGES DIRECTLY INTO THE ROANOKE RIVER. DOCUMENTATION PROVIDED IN THE ENGINEERING CALCULATIONS INSURES THE ADEQUACY OF THESE SYSTEMS.
 - (6) REFER TO SHEET C-7 FOR A POLLUTION PREVENTION PLAN.
 - (7) THE OPERATOR AND/OR THE RESPONSIBLE LAND DISTURBER MAY, AT THEIR DISCRETION INSTALL A RAIN-GUAGE TO IDENTIFY MEASURABLE STORM EVENTS FOR INSPECTION PURPOSES. THE RAIN GAUGE LOCATION SHALL BE MARKED ON THE CONSTRUCTION PLANS.
2. EROSION AND SEDIMENT CONTROL PLAN:
 - a. Plan Approval: THE EROSION AND SEDIMENT CONTROL PLAN PROVIDED ON SHEET C-4, ALONG WITH THE APPLICABLE DETAILS, NOTES AND SPECIFICATIONS HAVE BEEN PREPARED IN ACCORDANCE WITH THE EROSION AND SEDIMENT CONTROL REGULATIONS (9VAC25-94B) AND SUBSEQUENTLY APPROVED BY THE LOCAL YESCP.
 - b. Maintenance Responsibilities: ALL CONTROL MEASURES MUST BE PROPERLY MAINTAINED IN EFFECTIVE OPERATING CONDITION IN ACCORDANCE WITH GOOD ENGINEERING PRACTICES AND, WHERE APPLICABLE, MANUFACTURER SPECIFICATIONS. IF SITE INSPECTIONS IDENTIFY CONTROL MEASURES THAT ARE NOT OPERATING EFFECTIVELY, MAINTENANCE SHALL BE PERFORMED AS SOON AS PRACTICABLE TO MAINTAIN THE CONTINUED EFFECTIVENESS OF THE CONTROL MEASURES.
 - (1) Plan Implementation:
 - a. The design of the project has utilized acceptable YESCP methods to control the volume and velocity of stormwater runoff within the site to minimize soil erosion.
 - b. The supplemental engineering calculations, provide documentation that downstream channel and stream bank erosion will be minimized.
 - c. The final grading plan has been developed to minimize any excess grading outside the actual, court and bore-tention areas. The design also allows the bore-tention area to be utilized as a sediment trap to minimize unnecessary disturbances to the surrounding area. For these reasons, minimal amount of soil will be exposed during the construction.
 - d. There are no existing or proposed steep slopes located on this project that would be considered critical.
 - e. The frequency, intensity, and duration of rainfall are the principal factors that influence erosion from a construction site. Construction sequencing shall include the review of local weather sources to minimize disturbance during inclement weather.
 - f. There are no surface waters or natural buffers located within the project.
 - g. A soil stockpile shall be provided within the limits of disturbance. Topsoil may be utilized to help promote vegetation measures for the remainder of the site that is not covered by impervious material or part of the bore-tention filter area.
 - h. Rehabilitation of disturbed areas shall be initiated immediately whenever any clearing, grading, excavating, or other disturbing activity has permanently ceased on any portion of the site or temporarily ceases on any portion of the site and will not resume for a period exceeding fourteen (14) days.
 - i. A proposed storm pipe system has been provided to direct the increased run-off to an adequate channel. This pipe system will also be used in conjunction with the sediment trap to allow discharged run-offs to not create any downstream erosion, etc.
3. STORMWATER MANAGEMENT PLAN:
 - a. New Construction Activities:
 - (1) THE SUPPLEMENTAL ENGINEERING CALCULATIONS, THAT HAVE BEEN REVIEWED AND APPROVED BY THE LOCAL YESCP, HAVE BEEN PREPARED IN ACCORDANCE WITH THE VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMP) REGULATION 9VAC25-97C.
4. POLLUTION PREVENTION PLAN:
 - a. Potential Activities: POTENTIAL POLLUTION SOURCES INCLUDE SEDIMENTS FROM DENuded AREAS, LITTER, CONSTRUCTION DEBRIS, ASPHALT, PAINT, FUELING SPILLS, MAINTENANCE OF CONSTRUCTION EQUIPMENT, ROTURE OF HYDRAULIC HOSES, OR OTHER EQUIPMENT FAILURES, SPILLAGE, OR SOLID WASTES FROM CONSTRUCTION ACTIVITIES. REFER TO SHEET C-7 FOR A MORE DETAILED LIST OF ANY PREDICTED POLLUTANTS.
 - b. AT THE TIME OF THE PREPARATION OF THE CONSTRUCTION PLANS, THE EXACT LOCATION OF ANY OF THE NON-EROSION RELATED TO IDENTIFY AND RECORD THE LOCATIONS, ETC. IF REQUIRED.
 - c. REFER TO SHEET C-7 FOR ALL POTENTIAL NON-STORMWATER DISCHARGES THAT MAY BE ASSOCIATED WITH THIS PROJECT.
 - d. THE LIST OF QUALIFIED PERSONNEL PROVIDED IN SECTION 7 ARE ALSO RESPONSIBLE FOR IMPLEMENTING THE POLLUTION PREVENTION PRACTICE FOR POLLUTANT-DENURING ACTIVITY.
 - e. SEE SHEET C-7 FOR A LIST OF POLLUTION PREVENTION PRACTICES AND PROCEDURES THAT SHALL BE IMPLEMENTED FOR LEAKS, SPILLS AND OTHER POTENTIAL POLLUTANT RELEASES.

ACRONYMS	
BMP	BEST MANAGEMENT PRACTICE
COV	CODE OF VIRGINIA
DEQ	DEPARTMENT OF ENVIRONMENT QUALITY
EPA	ENVIRONMENTAL PROTECTION AGENCY
ESG	EROSION & SEDIMENT CONTROL
RLD	RESPONSIBLE LAND DISTURBER (REGISTERED W/DEQ)
SWM	STORMWATER MANAGEMENT
SWPPP	STORMWATER POLLUTION PREVENTION PLAN
VAC	VIRGINIA ADMINISTRATIVE CODE
YESCP	VIRGINIA EROSION & SEDIMENT CONTROL PROGRAM
VPDES	VIRGINIA POLLUTION DISCHARGE ELIMINATION SYSTEM
VSMP	VIRGINIA STORMWATER MANAGEMENT PROGRAM

5. DISCHARGES TO IMPAIRED WATERS:
 - a. Identification: THE PROJECT LIES WITHIN THE THE 100-YEAR FLOODPLAIN FOR THE ROANOKE RIVER. THIS PORTION OF THE RIVER HAS BEEN DECLARED IMPAIRED. INFORMATION IS CURRENTLY AVAILABLE FROM THE INTERNET WEBSITE OF THE VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY, http://www.deq.virginia.gov/portals/0/deq/inter/tnlu/capitalside/roanoke_river/floodmap.pdf BASED ON THE REVIEW OF THE REPORTS THE FOLLOWING INFORMATION SHALL BE CONSIDERED IN THE METHODS OF CONSTRUCTION.
 - (1) Runoff and Sediments: COMMON POLLUTANTS FROM THE LOCAL USE INCLUDE OIL AND GREASE FROM ROADWAYS, PESTICIDES FROM LAWNS, FERTILIZERS, ETC. THIS PROJECT WILL INCORPORATE CONSTRUCTION MEASURES THAT ARE EFFECTIVE AND RESULT IN THE REDUCTION OF SOIL EROSION AND SEDIMENT. THE LATTER POLLUTANTS IN STORMWATER DISCHARGES FROM THE PROJECT ARE THE DISCHARGES FROM THE CONSTRUCTION ACTIVITY. THE OPERATOR SHALL PROVIDE PROTECTIVE MEASURES TO PREVENT THE DISCHARGES FROM THE PROPOSED IMPERVIOUS AND MANAGED TIRE AREAS THAT WILL EVENTUALLY DISCHARGE TO THE ROANOKE RIVER. THE DESIGN OF THE EROSION AND SEDIMENT CONTROL PLAN, PROPER INSTALLATION AND MAINTENANCE OF THE PROPOSED PRACTICES AND THE REQUIREMENTS TO STABILIZE ALL DENuded AREAS WITHIN THE LIMITS OF CONSTRUCTION WILL HELP MINIMIZE THE CONTRIBUTION OF SEDIMENT TO THE ROANOKE RIVER.
 - b. Special Instructions:
 - (1) PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENuded AREAS WITHIN SEVEN (7) DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE.
 - (2) NUTRIENTS SHALL BE APPLIED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND SHALL NOT BE APPLIED DURING RAINFALL EVENTS.
 - (3) A ADDED INSPECTION SCHEDULE SHALL BE IMPLEMENTED FOR THIS PROJECT. INSPECTIONS SHALL BE CONDUCTED AT A FREQUENCY OF:
 - i) AT LEAST ONCE EVERY FOUR BUSINESS DAYS OR
 - ii) AT LEAST ONCE EVERY FIVE BUSINESS DAYS AND NO LATER THAN 48 HOURS FOLLOWING A MEASURABLE STORM EVENT. IN THE EVENT THAT A MEASURABLE STORM EVENT OCCURS WHEN THERE ARE MORE THAN 48 HOURS BETWEEN BUSINESS DAYS, THE INSPECTION SHALL BE CONDUCTED ON THE NEXT BUSINESS DAY.
 - (4) THE PORTABLE TOILETS WILL BE LOCATED AWAY FROM ANY CONCENTRATED FLOW PATHS AND TRAFFIC FLOW AND WILL HAVE AN EPA ACCEPTED SECONDARY CONTAINMENT METHOD INSTALLED. THE USE OF PORTABLE LAVATORIES WITHIN THE FLOOD-PLAIN FOR ROANOKE RIVER WILL ALSO REQUIRE THAT IN THE EVENT OF HEAVY RAINFALL EVENTS OR POTENTIAL FLOODING THE LAVATORIES SHALL BE IMMEDIATELY REMOVED FROM THE SITE AS SOON AS POSSIBLE, UNTIL FLOOD WATERS SUBSIDE BACK TO THE NORMAL RIVER BANKS.

6. QUALIFIED PERSONNEL:

THE FOLLOWING PERSONNEL ARE RESPONSIBLE FOR CONDUCTING INSPECTIONS. A QUALIFIED PERSON IS KNOWLEDGEABLE IN THE PRINCIPLES AND PRACTICES OF EROSION & SEDIMENT CONTROL AND POLLUTION PREVENTION WHO POSSES THE SKILLS TO ASSESS CONDITIONS AT THE CONSTRUCTION SITE THAT COULD IMPACT STORMWATER QUALITY, AND THE SKILLS TO ASSESS THE EFFECTIVENESS OF ANY STORMWATER CONTROL OR ORGANIZATION NAME: _____

NAME: _____	COMPANY OR ORGANIZATION NAME: _____
POSITION: _____	POSITION: _____
ADDRESS: _____	ADDRESS: _____
CITY, STATE, ZIP CODE: _____	CITY, STATE, ZIP CODE: _____
TELEPHONE NUMBER: _____	TELEPHONE NUMBER: _____
FAX/EMAIL: _____	FAX/EMAIL: _____

ATTACH ADDITIONAL FORMS IF ADDITIONAL QUALIFIED PERSONNEL ARE DELEGATED FOR THIS PROJECT.

7. DELEGATION OF AUTHORITY:

THE FOLLOWING SHALL BE IDENTIFIED AS THE OPERATORS OF THIS CONSTRUCTION ACTIVITY. THESE PERSONNEL HAVE THE CAPABILITY TO DELEGATE POWERS TO A FULLY AUTHORIZED REPRESENTATIVE(S) TO SIGN THE CONSTRUCTION STORMWATER POLLUTION PREVENTION PLAN (SWPPP). ALL SWPPP MODIFICATIONS AND ROUTINE INSPECTION REPORTS

COMPANY OR ORGANIZATION NAME: _____	NAME: _____
POSITION: _____	POSITION: _____
ADDRESS: _____	ADDRESS: _____
CITY, STATE, ZIP CODE: _____	CITY, STATE, ZIP CODE: _____
TELEPHONE NUMBER: _____	TELEPHONE NUMBER: _____
FAX/EMAIL: _____	FAX/EMAIL: _____

ATTACH ADDITIONAL FORMS IF ADDITIONAL QUALIFIED PERSONNEL ARE DELEGATED FOR THIS PROJECT.

8. SWPPP SIGNATURE:

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE READ AND UNDERSTAND THIS DOCUMENT AND THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHERED INFORMATION AND DATA FROM THE PROJECT AND THAT THE INFORMATION WAS CORRECTLY TRANSMITTED TO THE DESIGNER. I AM AWARE THAT THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION SUBMITTED IS TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS.

SIGNATURE _____ DATE _____

SWPPP AMENDMENTS, MODIFICATIONS, AND UPDATES:

THE OPERATOR OR THEIR DULY AUTHORIZED REPRESENTATIVE(S) SHALL REFER TO PART II, SECTION B FOR SUPPLEMENTAL REQUIREMENTS THAT MAY BE REQUIRED. THIS DOCUMENT MAY BE FOUND IN ITS ENTIRETY IN THE ENGINEERING CALCULATIONS.

THE GENERAL CONTRACTOR FOR THIS PROJECT WILL BE RESPONSIBLE FOR OBTAINING THE FINAL VPDES PERMIT FROM THE STATE OF VIRGINIA, DEPARTMENT OF ENVIRONMENTAL QUALITY. THIS PERMIT SHALL BE ACQUIRED THROUGH THE CITY OF ROANOKE PLANNING, BUILDING & DEVELOPMENT DEPARTMENT. AFTER THE VPDES HAS BEEN OBTAINED, THE GENERAL CONTRACTOR SHALL THEN APPLY FOR A LAND-DISTURBING PERMIT, AND SCHEDULE A PRE-CONSTRUCTION MEETING.

**COMMONWEALTH OF VIRGINIA
DEPARTMENT OF ENVIRONMENTAL QUALITY
General Permit No.: VARIO**

IN COMPLIANCE WITH THE PROVISIONS OF THE CLEAN WATER ACT, AS AMENDED, AND PURSUANT TO THE VIRGINIA STORMWATER MANAGEMENT ACT AND REGULATIONS ADOPTED PURSUANT THERETO, OPERATORS OF CONSTRUCTION ACTIVITIES ARE AUTHORIZED TO DISCHARGE TO SURFACE WATERS WITHIN THE BOUNDARIES OF THE COMMONWEALTH OF VIRGINIA, EXCEPT THOSE SPECIFICALLY NAMED IN STATE WATER CONTROL BOARD REGULATIONS THAT PROHIBIT SUCH DISCHARGES.

THE AUTHORIZED DISCHARGE SHALL BE IN ACCORDANCE WITH THIS COVER PAGE, PART I - DISCHARGE AUTHORIZATION AND SPECIAL CONDITIONS, PART II - STORMWATER POLLUTION PREVENTION PLAN, AND PART III - CONDITIONS APPLICABLE TO ALL VPDES PERMITS AS SET FORTH HEREIN.

THE PERMIT, IN ITS ENTIRETY, IS PROVIDED WITH THE ENGINEERING CALCULATIONS AND ARE CONSIDERED AS A PART OF THE SWPPP.

A BASIC FRAMEWORK OF THIS PERMIT:

ALL PLANS INCORPORATED BY REFERENCE DOES NOT CONTAIN ALL OF THE REQUIRED ELEMENTS OF THE SWPPP OF SECTION II D. THE OPERATOR MUST DEVELOP THE MISSING ELEMENTS AND INCLUDE THEM IN THE REQUIRED SWPPP.

ONCE A DEFINABLE AREA HAS BEEN FINALLY STABILIZED, THE OPERATOR MAY MARK THIS ON THE SWPPP AND NO FURTHER SWPPP OR INSPECTION REQUIREMENTS APPLY TO THAT PORTION OF THE SITE.

THE SWPPP SHALL IDENTIFY ALL PROPERTIES THAT ARE NO LONGER UNDER THE CONTROL OF THE OPERATOR AND THE DATES ON WHICH THE OPERATOR NO LONGER HAD CONTROL OVER EACH PROPERTY. THE OPERATOR MUST IMPLEMENT THE SWPPP AS WRITTEN AND UPDATE AS REQUIRED FROM THE COMMENCEMENT OF CONSTRUCTION ACTIVITY UNTIL FINAL STABILIZATION IS COMPLETE.

THE SWPPP SHALL BE RETAINED, ALONG WITH A COPY OF THIS PERMIT, REGISTRATION STATEMENT, AND ACKNOWLEDGEMENT LETTER FROM THE PERMIT-ISSUING AUTHORITY, AT THE CONSTRUCTION SITE OR OTHER LOCATION EASY TO ACCESSIBLE DURING NORMAL BUSINESS HOURS FROM THE DATE OF COMMENCEMENT OF CONSTRUCTION ACTIVITY TO THE DATE OF FINAL STABILIZATION. OPERATORS WITH DAY-TO-DAY OPERATIONAL CONTROL OVER SWPPP IMPLEMENTATION SHALL HAVE A COPY OF THE SWPPP AVAILABLE AT ALL TIMES. THE SWPPP SHALL BE MAINTAINED AT THE CONSTRUCTION SITE. THE SWPPP MUST BE RESPONSIBLE UNDER THE SWPPP WHENEVER THEY ARE ON THE CONSTRUCTION SITE. THE SWPPP MUST BE MADE AVAILABLE, IN ITS ENTIRETY, TO THE DEPARTMENT. THE PERMIT-ISSUING AUTHORITY, AND THE OPERATOR OF A MUNICIPAL SEWER SYSTEM RECEIVING DISCHARGES FROM THE SITE FOR REVIEW AT THE TIME OF AN ON-SITE INSPECTION. IF AN ON-SITE LOCATION IS UNAVAILABLE TO STORE THE SWPPP WHEN NO PERSONNEL ARE PRESENT, NOTICE OF THE SWPPP'S LOCATION MUST BE POSTED NEAR THE MAIN ENTRANCE AT THE CONSTRUCTION SITE.

THE OPERATOR SHALL MAKE THE SWPPP AND ALL UPDATES AVAILABLE UPON REQUEST TO THE DEPARTMENT. THE PERMIT-ISSUING AUTHORITY, EPA, A STATE OR LOCAL AGENCY APPROVING EROSION AND SEDIMENT CONTROL PLANS, GRADING PLANS, OR STORMWATER MANAGEMENT PLANS, LOCAL GOVERNMENT OFFICIALS, OR THE OPERATOR OF A MUNICIPAL SEWER SYSTEM RECEIVING DISCHARGES FROM THE SITE.

A SIGN OR OTHER NOTICE MUST BE POSTED CONSPICUOUSLY NEAR THE MAIN ENTRANCE OF THE CONSTRUCTION SITE. THE SIGN OR OTHER NOTICE MUST CONTAIN THE FOLLOWING INFORMATION:

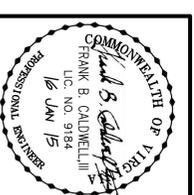
- A. A COPY OF THE PERMIT COVERAGE LETTER THAT INCLUDES THE REGISTRATION NUMBER FOR THE CONSTRUCTION ACTIVITY; AND
- B. THE INTERNET ADDRESS AT WHICH A COPY OF THE SWPPP MAY BE FOUND OR THE LOCATION OF A HARD COPY OF THE SWPPP AND NAME AND A TELEPHONE NUMBER OF A CONTACT PERSON FOR SCHEDULING VIEWING TIMES.

MAINTAINING AN UPDATED SWPPP

THE OPERATOR SHALL AMEND THE SWPPP WHENEVER THERE IS A CHANGE IN DESIGN, CONSTRUCTION ACTIVITY, OR THE LOCATION OF THE SWPPP. THE OPERATOR SHALL NOTIFY THE DEPARTMENT OF ENVIRONMENTAL QUALITY OF ANY CHANGES TO THE SWPPP. THE SWPPP MUST BE AMENDED IF DURING INSPECTIONS OR INVESTIGATIONS BY THE OPERATOR'S QUALIFIED PERSONNEL, OR BY LOCAL, STATE OR FEDERAL OFFICIALS, IT IS DETERMINED THAT THE EXISTING CONTROL MEASURES ARE INEFFECTIVE IN MINIMIZING POLLUTANTS IN STORMWATER DISCHARGES FROM THE CONSTRUCTION SITE. REVISIONS TO THE SWPPP SHALL INCLUDE ADDITIONAL OR MODIFIED CONTROL MEASURES DESIGNED TO CORRECT PROBLEMS IDENTIFIED. IF APPROVAL BY A PLAN-APPROVING AUTHORITY IS NECESSARY FOR THE CONTROL MEASURE, REVISIONS TO THE SWPPP SHALL BE COMPLETED WITHIN SEVEN CALENDAR DAYS OF APPROVAL. IMPLEMENTATION OF THESE ADDITIONAL OR MODIFIED CONTROL MEASURES MUST BE ACCOMPLISHED AS DESCRIBED IN PART II G.

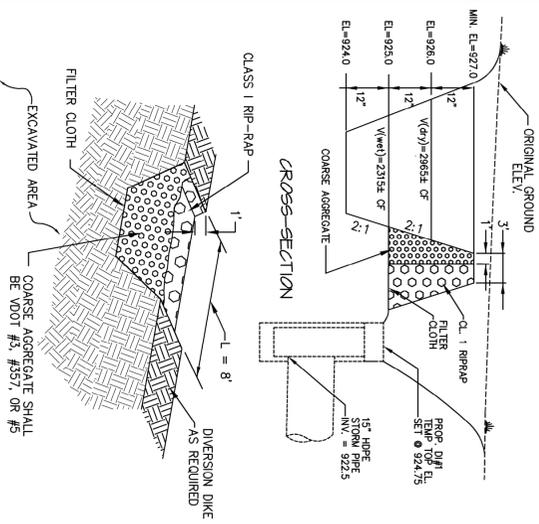
C. REVISIONS TO THE SWPPP MUST BE DATED AND SIGNED IN ACCORDANCE WITH THE SIGNATORY REQUIREMENTS FOUND IN THE VARIO PERMIT.

D. THE SWPPP MUST CLEARLY IDENTIFY THE CONTRACTOR(S) OR SUBCONTRACTOR(S) THAT WILL IMPLEMENT AND MAINTAIN EACH MEASURE IDENTIFIED IN THE SWPPP. THE SWPPP SHALL BE REVISED TO IDENTIFY ANY NEW CONTRACTOR THAT WILL IMPLEMENT A MEASURE.



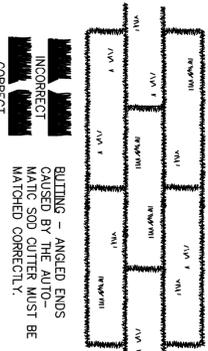
GENERAL PERMIT NO.: VARIO -
SUPPLEMENTAL INFORMATION
CITY OF ROANOKE
DEPARTMENT OF PARKS and RECREATION
PROPOSED TENNIS COURTS
SITUATE RIVERS EDGE PARK - NORTH
RESERVE AVENUE, SW
ROANOKE CITY, VIRGINIA

CADWELL WHITE ASSOCIATES
ENGINEERS / SURVEYORS / PLANNERS
4203 METZGER AVENUE, N.W.
ROANOKE, VIRGINIA 24017
P.O. BOX 6260
MAIL: CW@ROANOKEVAOL.COM
TEL: 540-986-9400

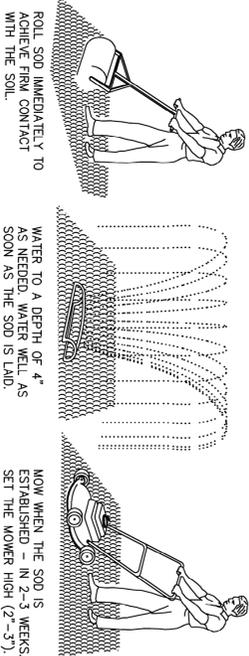


MAINTENANCE:
 1. SEDIMENT SHALL BE REMOVED AND THE TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE STRUCTURE IS FOUND TO BE DAMAGED OR INOPERATIVE.
 2. THE TRAP SHALL BE MAINTAINED IN A CLEAN AND OPEN CONDITION AT ALL TIMES.
 3. THE TRAP SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
 4. COARSE AGGREGATE SHALL BE PAID TO THE TOP OF THE TRAP TO MAINTAIN THE PROPER GRADE.
 5. THE TRAP SHALL BE MAINTAINED IN A CLEAN AND OPEN CONDITION AT ALL TIMES.
 6. THE TRAP SHALL BE MAINTAINED IN A CLEAN AND OPEN CONDITION AT ALL TIMES.
 7. THE TRAP SHALL BE MAINTAINED IN A CLEAN AND OPEN CONDITION AT ALL TIMES.
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 9. THE TRAP SHALL BE MAINTAINED IN A CLEAN AND OPEN CONDITION AT ALL TIMES.
 10. THE TRAP SHALL BE MAINTAINED IN A CLEAN AND OPEN CONDITION AT ALL TIMES.

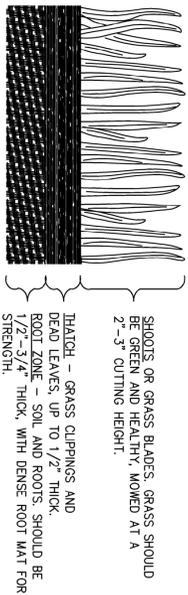
(ST) SEDIMENT TRAP
 (see plan for trap dimensions)



LAY SOD IN A STAGGERED PATTERN BUT THE STRIPS TIGHTLY AGAINST EACH OTHER. DO NOT LEAVE SPACES AND DO NOT OVERLAP. A SHARPENED MASON'S TROWEL IS A HANDY TOOL FOR TUCKING DOWN THE ENDS AND TRIMMING PIECES.



WATER TO A DEPTH OF 4\"/>

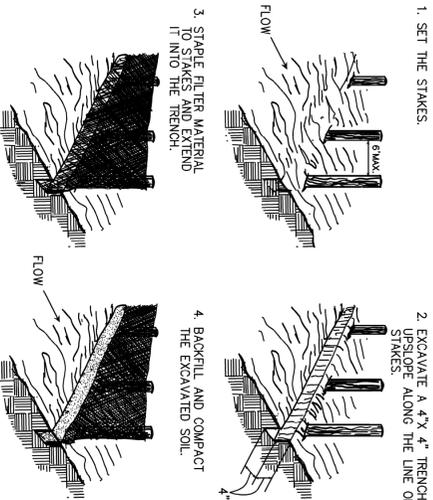


SOURCE: VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, DATED 1992, PLATE 3-53-1

MAINTENANCE:
 1. DURING THE 2 TO 3 WEEK ESTABLISHMENT STAGE, SOD SHALL BE WATERED AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE IN THE ROOT ZONE AND PREVENT DORMANCY OF SOD.
 2. SOD MORE THAN ONE THIRD OF THE SHOOT (GRASS LEAF) SHOULD BE REMOVED IN ANY MORNING GRASS CUTTING.
 3. AFTER THE FIRST GROWING SEASON, ESTABLISHED SOD WILL REQUIRE FERTILIZATION AND MAY REQUIRE LINE FOLLOW SOIL TEST RECOMMENDATIONS WHEN POSSIBLE, OR APPLY MAINTENANCE LEVELS AS OUTLINED IN TABLE 3-33-B OF THE VLS&C.

(SO) SODDING

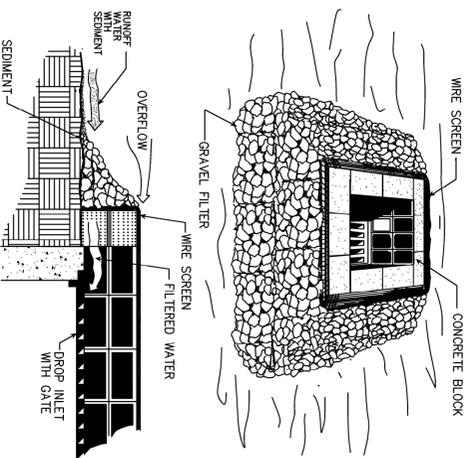
CONSTRUCTION OF A SILT FENCE (WITHOUT WIRE SUPPORT)



SHEET PILE INSTALLATION

SOURCE: VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, DATED 1992, PLATE 3-65-2

(SF) SILT FENCE



THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE HEAVY FLOWS ARE EXPECTED AND WHERE AN OVERFLOW CAPACITY IS NECESSARY TO PREVENT EXCESSIVE PONDING AROUND THE STRUCTURE.
 GRAVEL SHALL BE VDOT #3, #37 OR #5 COARSE AGGREGATE.
 SOURCE: VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, DATED 1992, PLATE 3-07-3.

MAINTENANCE:
 1. THE STRUCTURE SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
 2. THE TRAP SHALL BE MAINTAINED IN A CLEAN AND OPEN CONDITION AT ALL TIMES.
 3. THE TRAP SHALL BE MAINTAINED IN A CLEAN AND OPEN CONDITION AT ALL TIMES.
 4. THE TRAP SHALL BE MAINTAINED IN A CLEAN AND OPEN CONDITION AT ALL TIMES.
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 7. THE TRAP SHALL BE MAINTAINED IN A CLEAN AND OPEN CONDITION AT ALL TIMES.
 8. THE TRAP SHALL BE MAINTAINED IN A CLEAN AND OPEN CONDITION AT ALL TIMES.
 9. THE TRAP SHALL BE MAINTAINED IN A CLEAN AND OPEN CONDITION AT ALL TIMES.
 10. THE TRAP SHALL BE MAINTAINED IN A CLEAN AND OPEN CONDITION AT ALL TIMES.

(IP) INLET PROTECTION

SITE CONSIDERATIONS:

1. WHETHER AN ADEQUATE VOLUME OF TOPSOIL EXISTS ON THE SITE OR NOT, TOPSOIL SHALL BE SPREAD AT A COMPACTED DEPTH OF 2 TO 4 INCHES (DEPTHS CLOSER TO 4 INCHES ARE PREFERRED) WHEN INDICATED ON THE PLANS. ANY TOPSOIL STOCKPILES SO THAT IT MEETS VESCH SPECIFICATIONS AND DOES NOT INTERFERE WITH WORK ON THE SITE.
2. ALLOW SUFFICIENT TIME IN SCHEDULING FOR TOPSOIL TO BE SPREAD AND BONDED PRIOR TO SEEDING, SOODING, OR PLANTING.
3. CARE MUST BE TAKEN NOT TO APPLY TOPSOIL TO SUBSOIL IF THE TWO SOILS HAVE CONTRASTING TEXTURES. CLAYEY TOPSOIL OVER SANDY SUBSOIL IS A PARTICULARLY POOR SUBSTRATION, AS WATER MAY CREEP ALONG THE JUNCTION BETWEEN THE SOIL LAYERS, CAUSING THE TOPSOIL TO SLOUGH. SANDY TOPSOIL OVER A CLAY SUBSOIL IS IF TOPSOIL AND SUBSOIL ARE NOT PROPERLY BONDED, WATER WILL NOT INFILTRATE THE SOIL PROFILE ENLTY AND IT WILL BE DIFFICULT TO ESTABLISH VEGETATION. TOPSOILING OF STEEP SLOPES SHOULD BE DISCOURAGED UNLESS GOOD BONDING OF SOILS CAN BE ACHIEVED.

SPECIFICATIONS:

1. FILL TO JUSTIFY STRIPPING, TOPSOIL SHALL BE FRAGILE AND LOAMY (LOAM, SANDY LOAM, SILT LOAM, SANDY CLAY LOAM, CLAY LOAM) BEING FREE OF DEBRIS, STUMPS, ROCKS, AND FOREIGN WEEDS, AND SHALL POTENTIALLY TOXIC TO PLANT GROWTH. IT SHALL CONTAIN NO SUBSTANCE THAT IS ALL TOPSOIL SHALL BE TESTED BY A RECOGNIZED LABORATORY FOR THE FOLLOWING CRITERIA:
 A. PH RANGE SHALL BE FROM 6.0-7.5. IF PH IS LESS THAN 6.0, LIME SHALL BE ADDED IN ACCORDANCE WITH SOIL TEST RESULTS OR IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE VEGETATIVE ESTABLISHMENT PRACTICE BEING USED.
 C. SOLUBLE SALTS SHALL NOT EXCEED 500 PPM.
 IF TOPSOIL IS NOT TESTED, IT MUST MEET THE STANDARDS STATED ABOVE. STRIPPING TOPSOIL OPERATIONS SHOULD NOT BE PERFORMED WHEN THE SOIL IS WET OR FROZEN. STRIPPING SHALL BE CONFINED TO THE IMMEDIATE CONSTRUCTION AREA. A 4-TO 6-INCH STRIPPING DEPTH IS COMMON, BUT DEPTH MAY VARY DEPENDING ON THE PARTICULAR SOIL. ALL PERMETER DIKES, BASINS, AND OTHER SEDIMENT CONTROLS SHALL BE IN PLACE PRIOR TO STRIPPING.

SITE PREPARATION PRIOR TO AND MAINTENANCE DURING TOPSOILING:

1. PREVIOUSLY ESTABLISHED GRADES ON THE AREAS TO BE TOPSOILED SHALL BE MAINTAINED ACCORDING TO THE APPROVED PLAN.
2. WHERE THE PH OF THE SUBSOIL IS 6.0 OR LESS, OR THE SOIL IS COMPOSED OF HEAVY CLAYS, AGRICULTURAL LIMESTONE SHALL BE SPREAD IN ACCORDANCE WITH THE SOIL TEST OR THE VEGETATIVE ESTABLISHMENT PRACTICE AFTER THE AREAS TO BE TOPSOILED HAVE BEEN BROUGHT TO GRADE, AND IMMEDIATELY PRIOR TO DUMPING AND SPREADING THE TOPSOIL. THE SURFACE SHALL BE LOOSEND BY DISC OR SCARIFYING TO A DEPTH OF AT LEAST 2 INCHES.

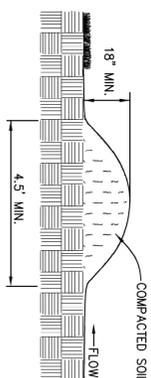
APPLYING TOPSOIL:

1. TOPSOIL SHALL NOT BE PLACED WHILE IN A FROZEN OR MUDDY CONDITION. WHEN TOPSOIL OR SUBGRADE IS FROZEN OR MUDDY, THE TOPSOIL SHALL BE SPREAD IN A MINIMUM OF TWO COMPACTED DEPTHS OF 2 INCHES ON 3:1 OR STEEPER SLOPES AND 4 INCHES ON FLATTER SLOPES. ANY IRREGULARITIES IN THE SURFACE, RESULTING FROM TOPSOILING OR OTHER OPERATIONS, SHALL BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
 IT IS NECESSARY TO COMPACT THE TOPSOIL ENOUGH TO ENSURE GOOD CONTACT WITH THE UNDERLYING SOIL AND TO BE AVOIDED AS IT INCREASES RUNOFF VELOCITY AND VOLUME, AND DEFERS SEED GERMINATION. SPECIAL CONSIDERATION SHOULD BE GIVEN TO THE TYPES OF EQUIPMENT USED TO PLACE TOPSOIL IN AREAS TO RECEIVE FINE TUNE. AVOID UNNECESSARY COMPACTION BY HEAVY MACHINERY WHENEVER POSSIBLE. IN AREAS WHICH ARE NOT GOING TO BE MOWED, THE SURFACE SHOULD BE LEFT ROUGH IN ACCORDANCE WITH SURFACE ROUGHENING (VESCH STD. & SPEC. 3.29).

SOIL STABILIZANTS:

1. SEDIMENT STABILIZANT SEED SHALL BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STABILIZANTS UNTIL SUFFICIENT TIME HAS ELAPSED TO PERMIT DISPERSION OF TOXIC MATERIALS.

(TO) TOPSOILING



MAINTENANCE:
 1. THE DIKE SHALL BE INSPECTED AFTER EVERY STORM AND REPAIRS MADE TO MAINTAIN THE DIKE IN A SOUND CONDITION.
 2. THE DIKE SHALL BE MAINTAINED IN A SOUND CONDITION AT ALL TIMES.
 3. THE DIKE SHALL BE MAINTAINED IN A SOUND CONDITION AT ALL TIMES.
 4. THE DIKE SHALL BE MAINTAINED IN A SOUND CONDITION AT ALL TIMES.
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 9. THE DIKE SHALL BE MAINTAINED IN A SOUND CONDITION AT ALL TIMES.
 10. THE DIKE SHALL BE MAINTAINED IN A SOUND CONDITION AT ALL TIMES.

(DD) TEMPORARY DIVERSION DIKE

DISTURBED AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE FOR A PERIOD OF MORE THAN 30 DAYS SHALL BE STABILIZED WITH TEMPORARY SEEDING MEASURES AS SHOWN HEREON, AND AS FURTHER DETAILED AS STANDARD AND SPECIFICATION 3.31 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION. TEMPORARY SEEDING MEASURES SHALL BE THAT WILL NOT BE FINE-GRADED FOR GREATER THAN 30 DAYS. THE FOLLOWING SPECIFIC MEASURES SHALL BE STABILIZED WITH TEMPORARY SEEDING IMMEDIATELY UPON COMPLETION OF CONSTRUCTION OF THE TEMPORARY MEASURE:
 - SOIL STOCKPILES
 - SLOPES OF SEDIMENT BASINS
 - TEMPORARY ROADWAY EMBANKMENTS

SEED PREPARATION:

LIME SHALL BE APPLIED IF DISTURBED AREAS WILL REMAIN DORMANT BETWEEN 30 DAYS AND 120 DAYS. IF REQUIRED, LIME SHALL BE APPLIED AS FOLLOWS, BASED ON SOIL ADDITY, BELOW 4.2 TONS PER ACRE
 4.2 TO 5.2 TONS PER ACRE
 5.2 TO 6.0 TONS PER ACRE
 ABOVE 6.0 TONS PER ACRE
 LIME NOT REQUIRED

FERTILIZATION:

FERTILIZER SHALL BE APPLIED AS 600 LBS/ACRE OF 10-20-10 OR EQUIVALENT NUTRIENTS. LIME (AS APPLICABLE) AND FERTILIZER SHALL BE INCORPORATED INTO THE TOP 2 TO 4 INCHES OF SOIL, IF POSSIBLE.
 SURFACE ROUGHENING SHALL BE REQUIRED WHERE AREAS TO BE SEEDING HAVE BEEN COMPACTED, CRUSTED, OR HARDENED BY CONSTRUCTION TRAFFIC, AS REQUIRED. SEEDERS SHALL BE ROUGHENED IN ACCORDANCE WITH STANDARD AND SPECIFICATION 3.29 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK. (TRACKING WITH BULLDOZER CLEATS SHALL BE USED IN SANDY SOILS)

SEEDING:

SEED SHALL BE EVENLY APPLIED WITH THE SAME MEANS SPECIFIED HEREIN FOR PERMANENT SEEDING. SMALL GRAINS SHALL BE PLANTED NO MORE THAN ONE INCH DEEP. GRASSES AND LEGUMES SHALL BE PLANTED WITH NO LESS THAN 1/4\"/>

WINTERING:

SEEDING MADE IN FALL FOR WINTER COVER AND DURING HOT AND DRY SUMMER MONTHS SHALL BE MULCHED ACCORDING TO STANDARD AND SPECIFICATION 3.35 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK. EXCEPT THAT FRESH MULCH MAY NOT BE USED. STRAW MULCH SHALL BE USED DURING THESE PERIODS. TEMPORARY SEEDING MADE UNDER FAVORABLE SOIL SITE CONDITIONS DURING WINTER SPRING AND FALL SEEDING DATES MAY NOT REQUIRE MULCH.

RE-SEEDING:

AREAS WHICH FAIL TO ESTABLISH VEGETATIVE COVER ADEQUATE TO PREVENT RILL EROSION SHALL BE RE-SEEDDED AS SOON AS SUCH AREAS ARE IDENTIFIED.
 ACCEPTABLE TEMPORARY SEEDING PLANT MATERIALS BY RANGE OF PLANTING DATES:
 09/01 TO 02/15 ANNUAL RYEGRASS @ 50 LB / ACRE
 02/15 TO 04/30 ANNUAL RYEGRASS @ 50 LB / ACRE
 AND WINTER RYE @ 20 LB / ACRE
 05/01 TO 08/31 GERMAN MILLET @ 50 LB / ACRE

(TS) TEMPORARY SEEDING

DISTURBED AREAS SHALL BE PERMANENTLY SEEDED WITHIN SEVEN (7) DAYS OF ACHIEVING FINAL GRADE, OR ON DISTURBED AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE WITHIN ONE YEAR.

TYPE A	TYPE B (SLOPES 3:1 OR STEEPER)
03/15 TO 05/15 OR 08/15 TO 10/31: ANNUAL RYEGRASS @ 20 LB / ACRE WINTER RYE @ 20 LB / ACRE TALL FESCUE @ 150 LB / ACRE	03/15 TO 05/15 OR 08/15 TO 10/31: ANNUAL RYEGRASS @ 20 LB / ACRE CROWN VETCH @ 20 LB / ACRE KY 31 FESCUE @ 150 LB / ACRE TALL FESCUE @ 150 LB / ACRE
05/16 TO 08/15: FOXTAIL MILLET @ 20 LB / ACRE RED TOP @ 20 LB / ACRE TALL FESCUE @ 150 LB / ACRE	05/16 TO 08/15: CROWN VETCH @ 20 LB / ACRE FOXTAIL MILLET @ 20 LB / ACRE KY 31 FESCUE @ 150 LB / ACRE TALL FESCUE @ 150 LB / ACRE
11/01 TO 02/28: WINTER RYE @ 20 LB / ACRE RED TOP @ 20 LB / ACRE TALL FESCUE @ 150 LB / ACRE	11/01 TO 02/28: CROWN VETCH @ 20 LB / ACRE WINTER RYE @ 20 LB / ACRE KY 31 FESCUE @ 150 LB / ACRE TALL FESCUE @ 150 LB / ACRE

LIME: 4,000 LB / ACRE PULVERIZED AGRICULTURAL LIMESTONE

FERTILIZER: 10-20-10 @ 1,000 LB / ACRE

MULCH: SHALL BE USED OVER ALL SEEDED AREAS AND SHALL BE APPLIED IN STRICT ACCORDANCE WITH STANDARD AND SPECIFICATION 3.35 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION.

SOIL CONDITIONING: INCORPORATION OF LIME AND FERTILIZERS SELECTION OF GERMINABLE SEED, MULCHING, MAINTENANCE OF NEW SEEDLINGS, AND RESEEDING SHALL BE IN ACCORDANCE WITH SPECIFICATIONS CONTAINED WITHIN THE VIRGINIA SOIL EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION. ADDITIONAL SEEDING TO BE PERFORMED AS REQUIRED BY THE CITY ENGINEER.

SEED APPLICATION: APPLY SEED UNIFORMLY WITH A CYCLONE SEEDER, DRILL, CLIP-UP SEEDER, OR HYDROSEEDER ON A FIRM, FRAGILE, SEEDBED. MAXIMUM SEEDING DEPTH SHALL BE 1/4 INCH.

(PS) PERMANENT SEEDING



VIRGINIA E.S.C. DETAILS
CITY OF ROANOKE
 DEPARTMENT OF PARKS and RECREATION
 PROPOSED TENNIS COURTS
 SITULATE RIVERS EDGE PARK - NORTH
 RESERVE AVENUE, SW
 ROANOKE CITY, VIRGINIA

CADWELL WHITE ASSOCIATES
 ENGINEERS / SURVEYORS / PLANNERS
 4303 MEDICINE ASSESSOR, N.W.
 ROANOKE, VIRGINIA 24017
 EMAIL: CADWELLWHITE@CWA.COM

LANDSCAPE REQUIREMENTS

BIORETENTION:
 PER REQUIREMENTS OF THE PROPOSED LANDSCAPE TEMPLATE FOR A BIORETENTION FILTER, ONE (1) TREE SHALL BE PROVIDED FOR EACH 250 OF SURFACE AREA OF MEDIA.

DESIGNED SURFACE AREA = 2075 S.F.
 TREES REQUIRED = 2075 / 250 = 9
 = 12

THE FOLLOWING ARE ACCEPTED BY THE VIRGINIA DEQ AND WILL CONTRIBUTE TO THE LANDSCAPE CANOPY REQUIREMENTS STATED BELOW.

THE FOLLOWING SMALL DECIDUOUS TREES ARE ACCEPTABLE:

SYMBOL	BOTANICAL NAME
	Amelanchier canadensis
	Cercis canadensis
	Chionanthus virginicus
	2"

CITY CANOPY:
 THE APPLICABLE REQUIREMENTS SET FORTH BY SEC. 36.2-641 OF THE CODE OF THE CITY, STATES THAT THE REQUIREMENTS OF THIS DIVISION SHALL ONLY APPLY TO THOSE PORTIONS OF THE SITE THAT ARE AFFECTED BY THE PROPOSED IMPROVEMENTS.

THE PROJECT AREA = 1.42 ACRES OR 61,856 S.F.
 FOR INPUD DISTRICTS, A 10% TREE CANOPY IS REQUIRED.
 10% OF 61,856 S.F. = 6,186 S.F.

ALL TREES REQUIRED SHALL BE SELECTED FROM THE APPROVED TREE LIST, TABLE 642-1 OF THE CODE OF THE CITY. A PROPOSED TREE LIST SHALL BE SUBMITTED TO THE DIRECTOR OF PARKS AND RECREATION, MR. DONNIE UNDERWOOD, PRIOR TO PURCHASING AND PLANTING.

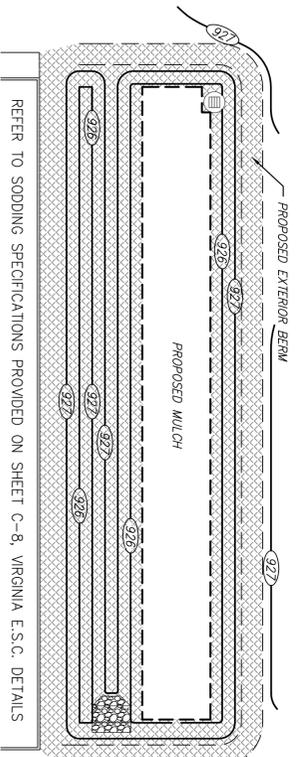
A 50-50 MIXTURE OF SMALL DECIDUOUS TREES AND LARGE DECIDUOUS TREE SHALL BE PROVIDED EXCLUSIVE OF THE BIORETENTION TREE.

SYMBOL	REPRESENTS A LARGE DECIDUOUS TREE. MIN. CANOPY = 254 SF	REPRESENTS A SMALL DECIDUOUS TREE. MIN. CANOPY = 177 SF

CANOPY PROVIDED:	TREES	SF	TREES	SF
SERVICEBERRY	4	201	4	804
REDBUD	4	177	4	708
FRINGETREE	4	113	4	452
SOUTHERN MAG	3	177	3	531
GRAPE MYRTLE	2	113	2	226
SMALL DECID.	9	177	9	1593
LARGE DECID.	9	254	9	2286
TOTAL				6600

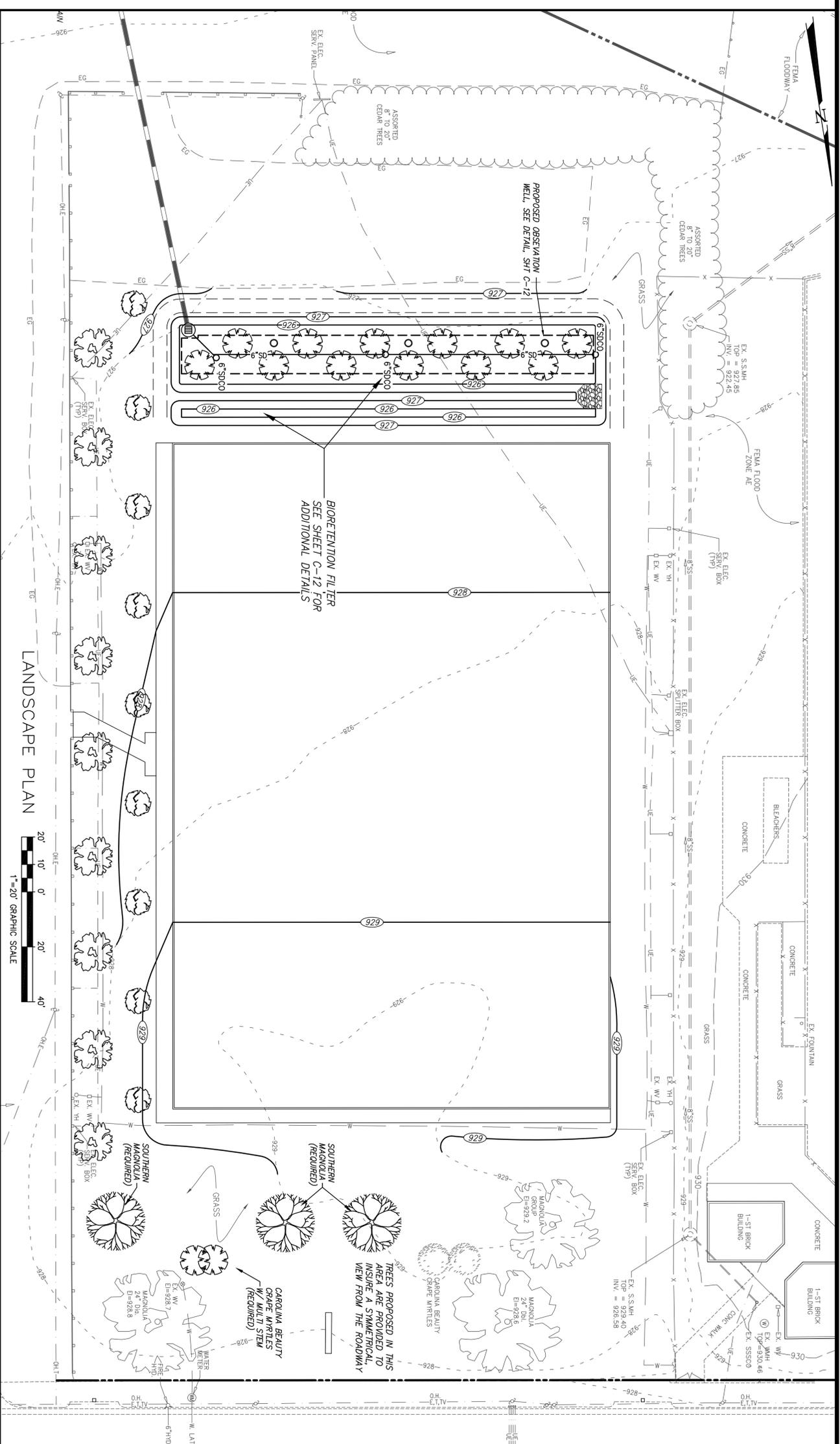
STREET YARD TREES:
 DECIDUOUS TREES, AS SET FORTH IN SECTION 36.2-642, TABLE 642-1, OF THE CITY OF ROANOKE ZONING ORDINANCE SHALL BE PROVIDED BETWEEN THE BUILDING LINE AND ANY PUBLIC RIGHT-OF-WAY WHEN SUCH BUILDING LINE IS TWENTY-FIVE (25) FEET OR MORE FROM THE ADJUTING PUBLIC RIGHT-OF-WAY. ONE (1) SUCH TREE SHALL BE PROVIDED FOR EACH FIFTY (50) FEET OF EITHER SIDE OF THE PUBLIC RIGHT-OF-WAY. (30) FEET DEPENDER PARKING AREA LANDSCAPING STRIPS AS REQUIRED IN SECTION 36.2-648(B)(5).

CURRENT SETBACK AS ESTABLISHED BY EXISTING FELDHOUSES FOR MAHER FIELD = 15'
 TREES REQD. WITHIN 25' SETBACK = 0



SODDING LIMITS

REFER TO SODDING SPECIFICATIONS PROVIDED ON SHEET C-8, VIRGINIA E.S.C. DETAILS



BIORETENTION AREA PLANTING SPECIFICATIONS

1. ROOT STOCK OF THE PLANT MATERIAL SHALL BE KEPT MOST DURING TRANSPORT FROM THE SOURCE TO THE JOB SITE AND UNTIL PLANTED.
2. WALLS OF PLANTING PIT SHALL BE DUG SO THAT THEY ARE VERTICAL.
3. THE DIAMETER OF THE PLANTING PIT MUST BE A MINIMUM OF SIX INCHES (6") LARGER THAN THE DIAMETER OF THE BALL OF THE TREE.
4. THE PLANTING PIT SHALL BE DEEP ENOUGH TO ALLOW 1/8 OF THE OVERALL DIMENSION OF THE ROOT BALL TO BE ABOVE GRADE. LOOSE SOIL AT THE BOTTOM OF THE PIT SHALL BE TAMPED BY HAND.
5. THE APPROPRIATE AMOUNT OF FERTILIZER IS TO BE PLACED AT THE BOTTOM OF THE PIT (SEE BELOW FOR FERTILIZATION RATES).
6. THE PLANT SHALL BE REMOVED FROM THE CONTAINER AND PLACED IN THE PLANTING PIT BY LIFTING AND CARRYING THE PLANT BY ITS BALL (NEVER LIFT BY BRANCHES OR TRUNK).
7. SET THE PLANT STRAIGHT AND IN THE CENTER OF THE PIT SO THAT APPROXIMATELY 1/8 OF THE DIAMETER OF THE ROOT BALL IS ABOVE THE FINAL GRADE.
8. BACKFILL PLANTING PIT WITH EXISTING SOIL.
9. MAKE SURE PLANT REMAINS STRAIGHT DURING BACKFILLING PROCEDURE.
10. NEVER COVER THE TOP OF THE BALL WITH SOIL. MOUND SOIL AROUND THE EXPOSED BALL.
11. TREES SHALL BE BRACED BY USING 2" BY 2" WHITE OAK STAKES. STAKES SHALL BE PLACED PARALLEL TO WALKWAYS AND BUILDINGS. STAKES ARE TO BE EQUALLY SPOCED ON THE OUTSIDE OF THE TREE BALL. UTILIZING HOSE AND WIRE THE TREE IS BRACED TO THE STAKES.
12. BECAUSE OF THE HIGH LEVELS OF NUTRIENTS IN STORMWATER RUNOFF TO BE TREATED, BIORETENTION FILTER PLANTS SHOULD NOT REQUIRE CHEMICAL FERTILIZATION.

PLANTING GUIDELINES

VARIABLE SPECIES: A MINIMUM OF THREE (3) SPECIES OF TREES SHALL BE SELECTED FOR THE BIORETENTION PLANTING AREA.
 ALL TREES TO BE PLANTED SHALL MEET THE SPECIFICATIONS OF THE AMERICAN ASSOCIATION OF NURSERYMEN.
 THE PLANTING OF TREES SHALL BE DONE IN ACCORDANCE WITH EITHER THE STANDARDIZED LANDSCAPE SPECIFICATIONS JOINTLY ADOPTED BY THE VIRGINIA NURSERYMEN'S ASSOCIATION, THE VIRGINIA SOCIETY OF LANDSCAPE DESIGNERS, AND THE VIRGINIA CHAPTER OF THE AMERICAN SOCIETY OF LANDSCAPE ARCHITECTS, OR THE ROAD AND BRIDGE SPECIFICATIONS OF THE VIRGINIA DEPARTMENT OF TRANSPORTATION.

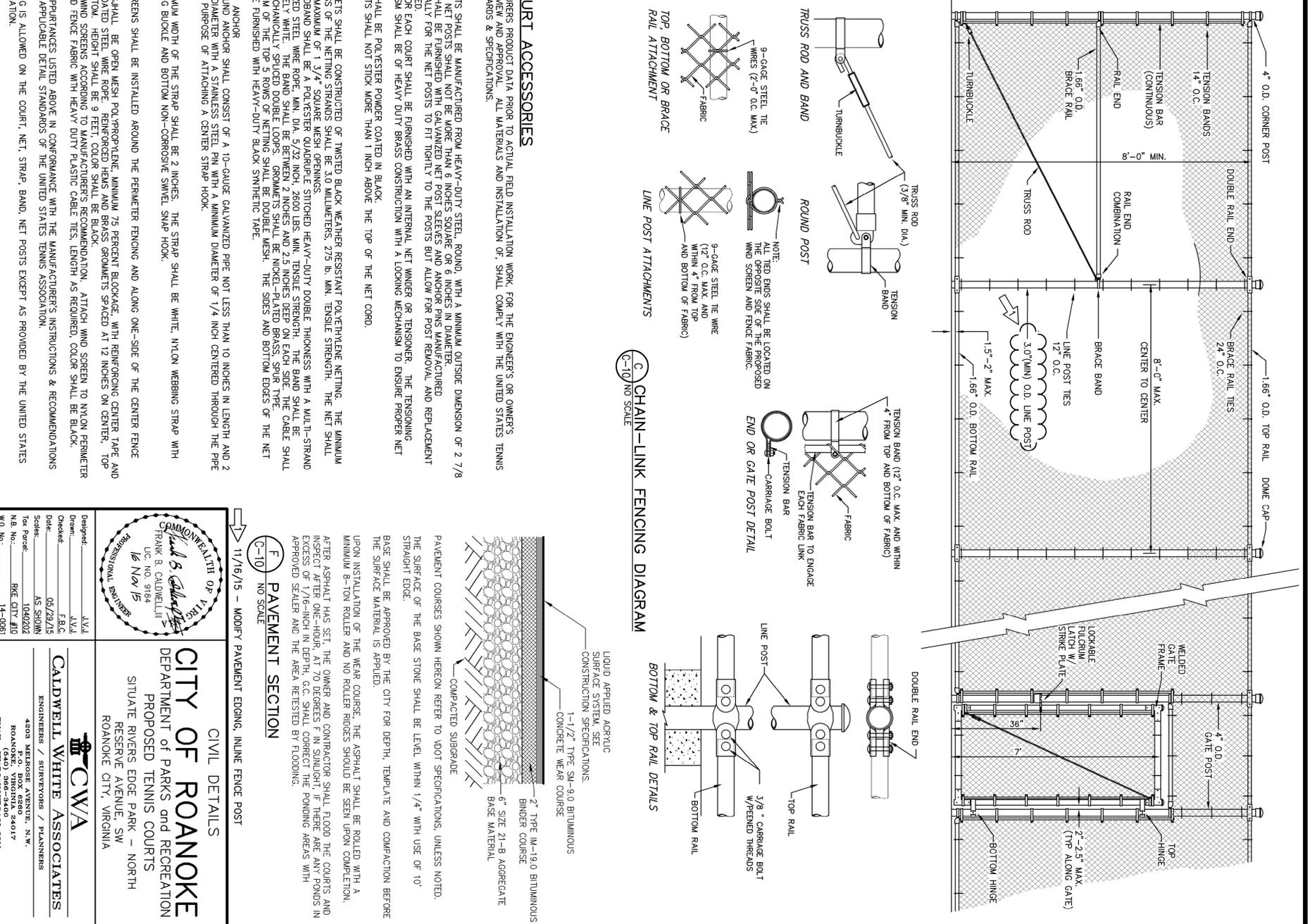
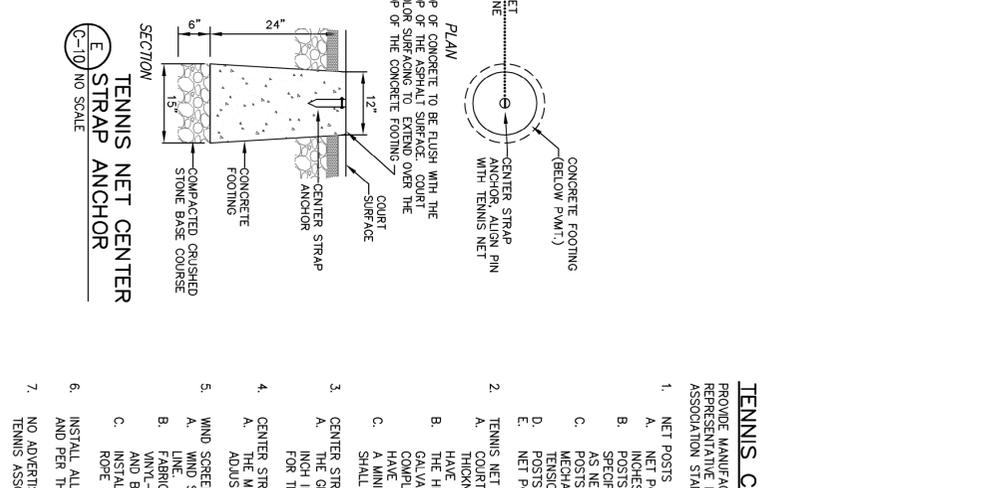
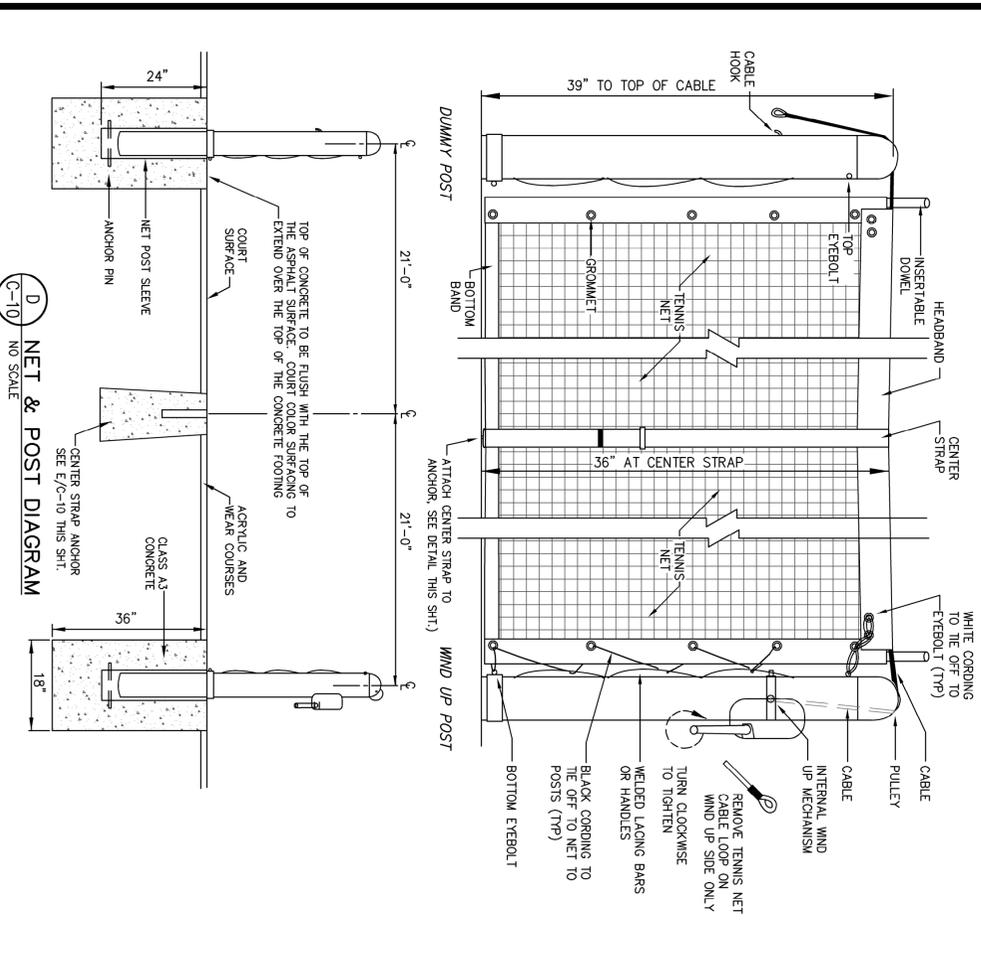
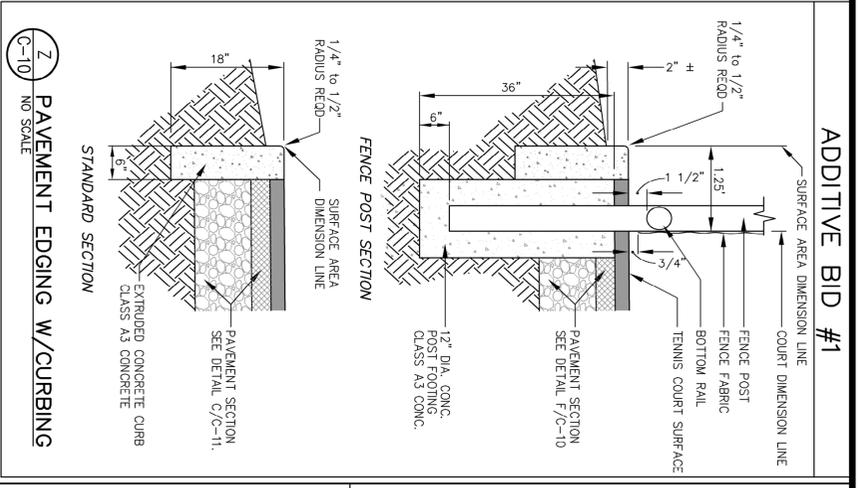
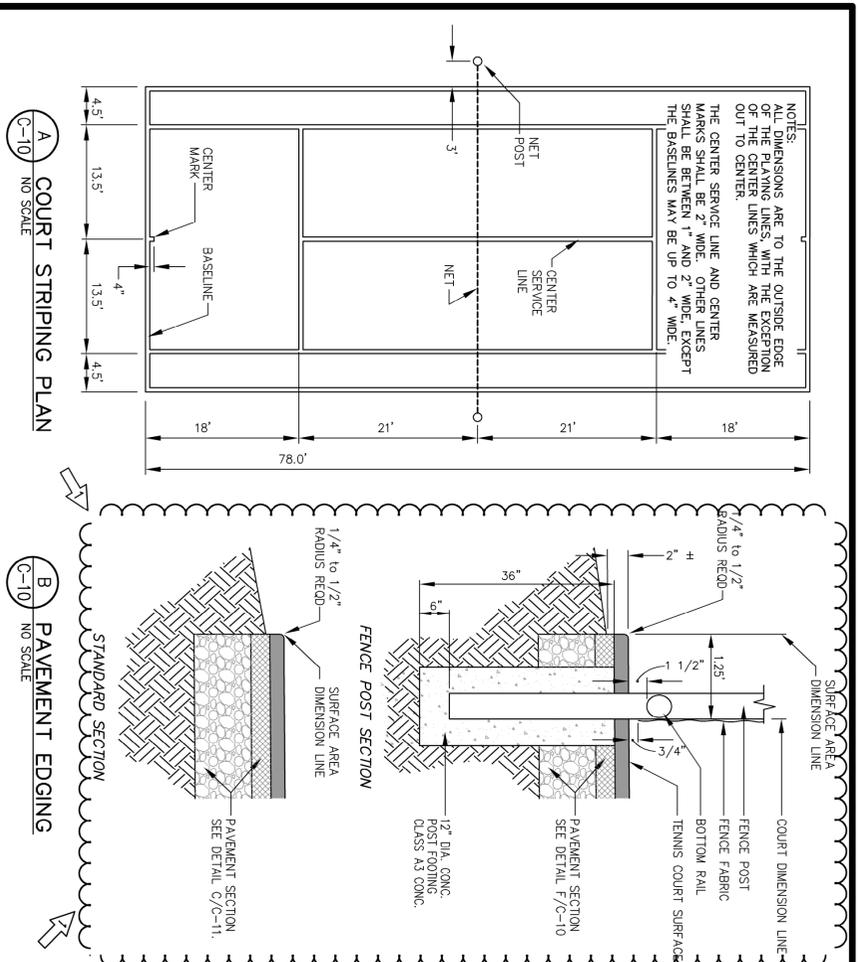


COMMONWEALTH OF VIRGINIA
 FRANK B. CALDWELL III
 LIC. NO. 9184
 16 JUN 15
 PROFESSIONAL ENGINEER

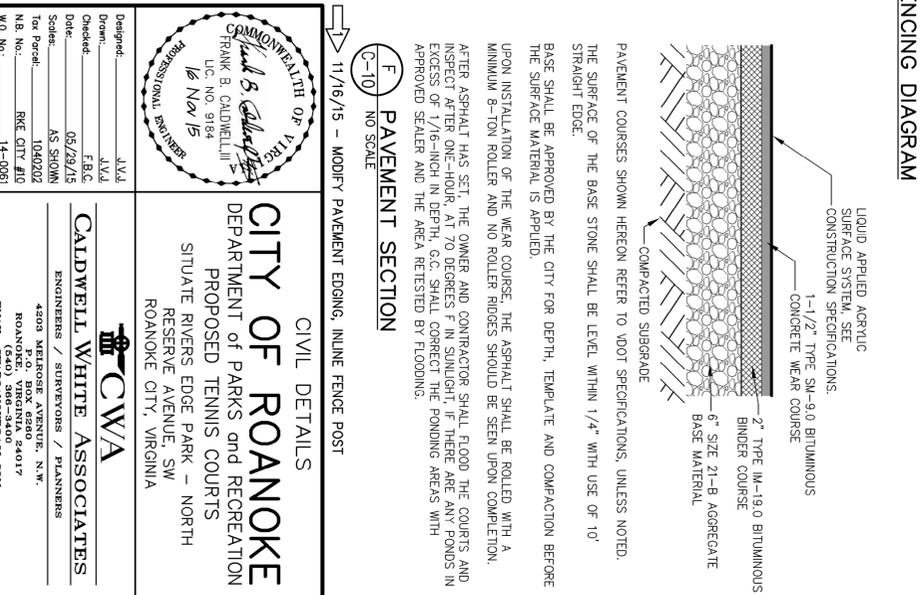
LANDSCAPE PLAN
 CITY OF ROANOKE
 DEPARTMENT OF PARKS and RECREATION
 PROPOSED TENNIS COURTS
 SITUATE RIVERS EDGE PARK - NORTH
 RESERVE AVENUE, SW
 ROANOKE CITY, VIRGINIA

CWA
 CALDWELL WHITE ASSOCIATES
 ENGINEERS / SURVEYORS / PLANNERS
 4305 MEDICINE CREEK ROAD, N.W.
 ROANOKE, VIRGINIA 24017
 EMAIL: CWA@CWAASSOCIATES.COM

Designed:	KXL
Drawn:	KXL
Checked:	F.B.C.
Revised:	01/16/15
Scale:	1"=20'
For Perch:	1040202
NS. No.:	RCE CITY #10
NO. No.:	14-0061



- TENNIS COURT ACCESSORIES**
- PROVIDE MANUFACTURER'S PRODUCT DATA PRIOR TO ACTUAL FIELD INSTALLATION WORK. FOR THE ENGINEER'S OR OWNER'S REPRESENTATIVE REVIEW AND APPROVAL. ALL MATERIALS AND INSTALLATION OF SHALL COMPLY WITH THE UNITED STATES TENNIS ASSOCIATION STANDARDS & SPECIFICATIONS.
- NET POSTS
 - NET POSTS SHALL BE MANUFACTURED FROM HEAVY-DUTY STEEL, ROUND, WITH A MINIMUM OUTSIDE DIMENSION OF 2 7/8 INCHES. NET POSTS SHALL NOT BE MORE THAN 6 INCHES SQUARE OR 6 INCHES IN DIAMETER.
 - POSTS SHALL BE GALVANIZED WITH GALVANIZED NET POST SLEEVES AND ANCHOR PINS MANUFACTURED SPECIFICALLY FOR THE NET POSTS TO FIT TIGHTLY TO THE POSTS BUT ALLOW FOR POST REMOVAL AND REPLACEMENT AS NEEDED.
 - POSTS FOR EACH COURT SHALL BE FURNISHED WITH AN INTERNAL NET WINDER OR TENSIONER. THE TENSIONING MECHANISM SHALL BE OF HEAVY DUTY BRASS CONSTRUCTION WITH A LOCKING MECHANISM TO ENSURE PROPER NET TENSION.
 - POSTS SHALL BE POLYESTER POWDER COATED IN BLACK.
 - NET POSTS SHALL NOT STICK MORE THAN 1 INCH ABOVE THE TOP OF THE NET CORO.
 - TENNIS NET
 - COURT NETS SHALL BE CONSTRUCTED OF TWISTED BLACK WEATHER RESISTANT POLYETHYLENE NETTING. THE MINIMUM THICKNESS OF THE NETTING STRANDS SHALL BE 3.0 MILLIMETERS, 275 lb. MIN. TENSILE STRENGTH. THE NET SHALL HAVE A MAXIMUM OF 1 3/4" SQUARE MESH OPENINGS.
 - THE HEADBAND SHALL BE A POLYESTER QUADRUPLE STITCHED HEAVY-DUTY DOUBLE THICKNESS WITH A MULTI-STRAND GALVANIZED STEEL WIRE ROPE, MIN. DIA. 5/32 INCH, 2600 LBS. MIN. TENSILE STRENGTH. THE BAND SHALL BE COMPLETELY WHITE. THE BAND SHALL BE BETWEEN 2 INCHES AND 2.5 INCHES DEEP ON EACH SIDE. THE CABLE SHALL HAVE A MECHANICALLY ATTACHED DOUBLE LONGS GROMMETS SHALL BE NICKEL-PLATED BRASS SPUR TYPE.
 - THE NET SHALL BE FURNISHED WITH HEAVY-DUTY BLACK SYNTHETIC TAPE. THE SIDES AND BOTTOM EDGES OF THE NET SHALL BE FURNISHED WITH HEAVY-DUTY BLACK SYNTHETIC TAPE.
 - CENTER STRAP ANCHOR
 - THE GROUND ANCHOR SHALL CONSIST OF A 10-GAUGE GALVANIZED PIPE NOT LESS THAN 10 INCHES IN LENGTH AND 2 INCH IN DIAMETER WITH A STAINLESS STEEL PIN WITH A MINIMUM DIAMETER OF 1/4 INCH CENTERED THROUGH THE PIPE FOR THE PURPOSE OF ATTACHING A CENTER STRAP HOOK.
 - CENTER STRAP
 - THE MINIMUM WIDTH OF THE STRAP SHALL BE 3 INCHES. THE STRAP SHALL BE WHITE NYLON WEBBING STRAP WITH ADJUSTING BUCKLE AND BOTTOM NON-CORROSIVE SWIVEL SHAK HOOK.
 - WIND SCREENS
 - WIND SCREENS SHALL BE INSTALLED AROUND THE PERIMETER FENCING AND ALONG ONE-SIDE OF THE CENTER FENCE LINE.
 - FABRIC SHALL BE OPEN MESH POLYPROPYLENE, MINIMUM 75 PERCENT BLOCKAGE, WITH REINFORCING CENTER TAPE AND VINY-COATED STEEL WIRE ROPE, REINFORCED HEADS AND BRASS GROMMETS SPACED AT 12 INCHES ON CENTER. TOP AND BOTTOM HEIGHT SHALL BE 9 FEET. COLOR SHALL BE BLACK.
 - INSTALL WIND SCREENS ACCORDING TO MANUFACTURER'S RECOMMENDATION. ATTACH WIND SCREEN TO NYLON PERIMETER ROPE AND FENCE FABRIC WITH HEAVY DUTY PLASTIC CABLE TIES. LENGTH AS REQUIRED. COLOR SHALL BE BLACK.
 - INSTALL ALL APPARATUS LISTED ABOVE IN CONFORMANCE WITH THE MANUFACTURER'S INSTRUCTIONS & RECOMMENDATIONS AND PER THE APPLICABLE DETAIL STANDARDS OF THE UNITED STATES TENNIS ASSOCIATION.
 - NO ADVERTISING IS ALLOWED ON THE COURT, NET, STRAP, BAND, NET POSTS EXCEPT AS PROVIDED BY THE UNITED STATES TENNIS ASSOCIATION.



CIVIL DETAILS

CITY OF ROANOKE

DEPARTMENT OF PARKS and RECREATION

PROPOSED TENNIS COURTS

SITULATE RIVERS EDGE PARK - NORTH

RESERVE AVENUE, SW

ROANOKE CITY, VIRGINIA

CADWELL WHITE ASSOCIATES

ENGINEERS / SURVEYORS / PLANNERS

4808 METROPLEX AVENUE, N.W.

ROANOKE, VIRGINIA 24017

PHONE: 540-991-1100

EMAIL: CADWELLWHITE@CWA.COM

Professional Seal: *Frank B. Caldwell III*, License No. 9184, dated 05/29/15, expires 05/29/20.

Scale: AS SHOWN

Date: 05/29/15

Checked: F.B.C.

Designed: A.Y.L.

Drawn: A.Y.L.

Proj. No.: 1040220

Rev. No.: RRE DTY #10

W.O. No.: 14-0051

