WHEELER RENAISSANCE

4129 WHEELER ROAD, SE
WASHINGTON, DC 20032

PLANNED UNIT DEVELOPMENT AND MAP AMENDMENT

DRAWING INDEX - CIVIL

DRAWING INDEX - LANDSCAPE

PROJECT TEAM

OWNER: WASHINGTON BUSINESS GROUP, INC
ARCHITECT: SGA COMPANIES, INC
CIVIL ENGINEER: MADDOX ENGINEERS AND SURVEYORS, INC
LAND USE ATTORNEY: GRIFFIN, MURPHY, MOLDENHAUER AND WIGGINS, LLC

WASHINGTON BUSINESS GROUP

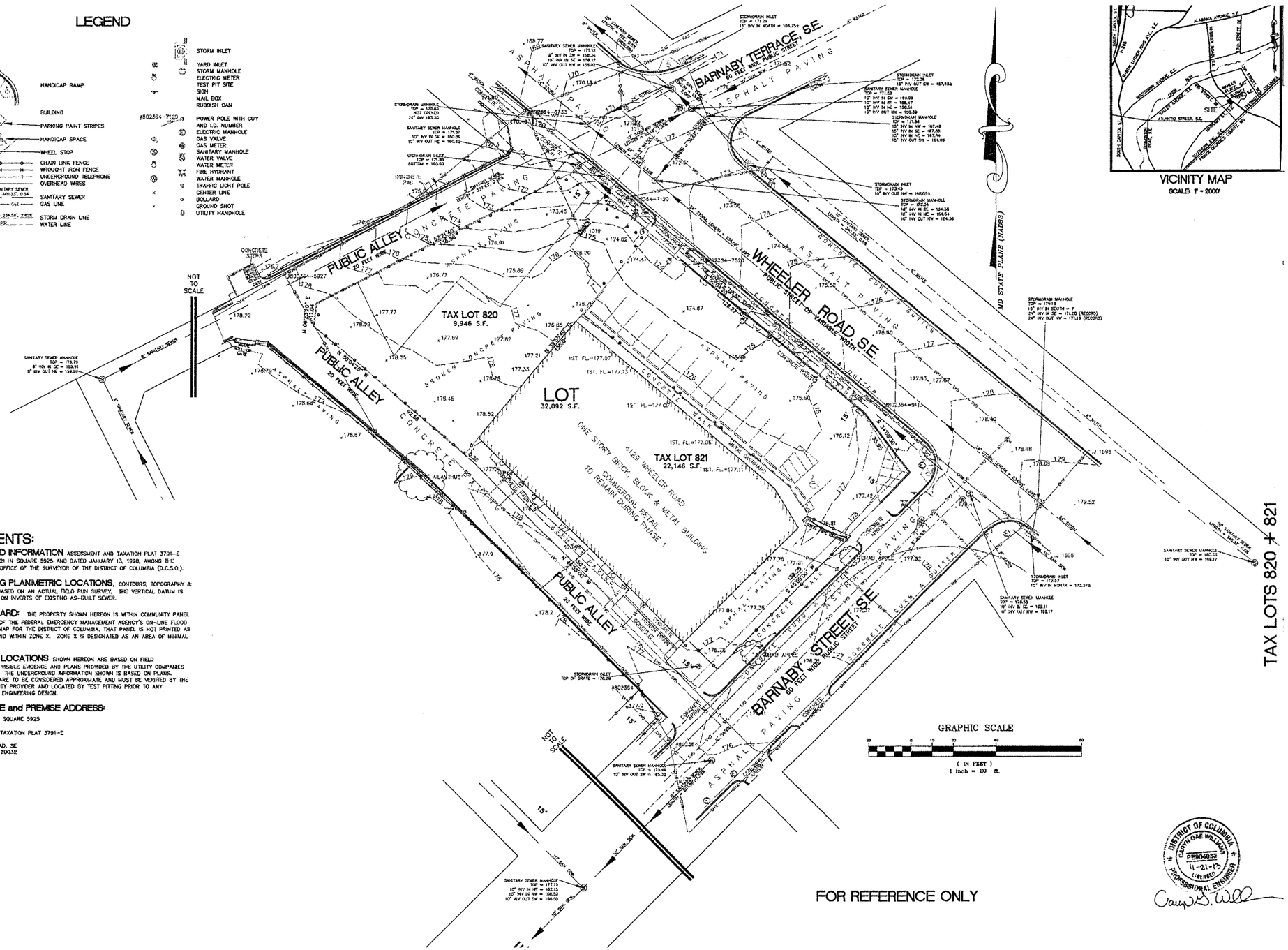
WHEELER RENAISSANCE - CIVIL COVER SHEET

SCALE: **NTS**
DATE: **04/16/2014**

COVER

LEGEND

- HANDICAP RAMP
- BUILDING
- PARKING PAINT STRIPES
- HANDICAP SPACE
- WHEEL STOP
- CHAIN LINK FENCE
- WROUGHT IRON FENCE
- UNDERGROUND TELEPHONE
- OVERHEAD WIRES
- 10" SANITARY SEWER, LENGTH = 340.33', 0.5% — SANITARY SEWER
- GAS — GAS LINE
- 24" STORM, LENGTH = 234.54', 2.82% — STORM DRAIN LINE
- WATER — WATER LINE
- STORM INLET
- YARD INLET
- STORM MANHOLE
- ELECTRIC METER
- TEST PIT SITE
- SIGN
- MAIL BOX
- RUBBISH CAN
- #802364-7123 — POWER POLE WITH GUY AND I.D. NUMBER
- ELECTRIC MANHOLE
- GAS VALVE
- GAS METER
- SANITARY MANHOLE
- WATER VALVE
- WATER METER
- FIRE HYDRANT
- WATER MANHOLE
- TRAFFIC LIGHT POLE
- CENTER LINE
- BOLLARD
- GROUND SHOT
- UTILITY HANDHOLE



TAX LOTS 820 & 821

COMMENTS:

THE RECORD INFORMATION ASSESSMENT AND TAXATION PLAT 3791-E FOR LOT 820 & 821 IN SQUARE 5925 AND DATED JANUARY 13, 1998, AMONG THE RECORDS OF THE OFFICE OF THE SURVEYOR OF THE DISTRICT OF COLUMBIA (D.C.S.O.).

THE EXISTING PLANIMETRIC LOCATIONS, CONTOURS, TOPOGRAPHY & ELEVATIONS ARE BASED ON AN ACTUAL FIELD RUN SURVEY. THE VERTICAL DATUM IS DC DATUM BASED ON INVERTS OF EXISTING AS-BUILT SEWER.

FLOOD HAZARD: THE PROPERTY SHOWN HEREON IS WITHIN COMMUNITY PANEL No. 11000100079C OF THE FEDERAL EMERGENCY MANAGEMENT AGENCY'S ON-LINE FLOOD INSURANCE RATE MAP FOR THE DISTRICT OF COLUMBIA. THAT PANEL IS NOT PRINTED AS OF 09/27/2010 AND WITHIN ZONE X. ZONE X IS DESIGNATED AS AN AREA OF MINIMAL FLOOD HAZARD.

THE UTILITY LOCATIONS SHOWN HEREON ARE BASED ON FIELD OBSERVATIONS OF VISIBLE EVIDENCE AND PLANS PROVIDED BY THE UTILITY COMPANIES AND AUTHORITIES. THE UNDERGROUND INFORMATION SHOWN IS BASED ON PLANS. THEIR LOCATIONS ARE TO BE CONSIDERED APPROXIMATE AND MUST BE VERIFIED BY THE APPROPRIATE UTILITY PROVIDER AND LOCATED BY TEST PITTING PRIOR TO ANY CONSTRUCTION OR ENGINEERING DESIGN.

LOT, SQUARE and PREMISE ADDRESS:

LOT 820 & 821 IN SQUARE 5925

ASSESSMENT AND TAXATION PLAT 3791-E

4129 WHEELER ROAD, SE
WASHINGTON, DC 20032

FOR REFERENCE ONLY

DISTRICT OF COLUMBIA — CURTIS GAE WILLIAMS — PE904833 — 11-21-13 — LICENSED PROFESSIONAL ENGINEER

C-100

WASHINGTON BUSINESS GROUP

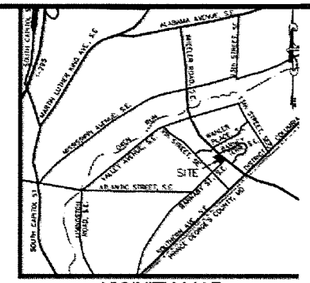
WHEELER RENAISSANCE - EXISTING CONDITIONS

SCALE: NTS
DATE: 04/16/2014

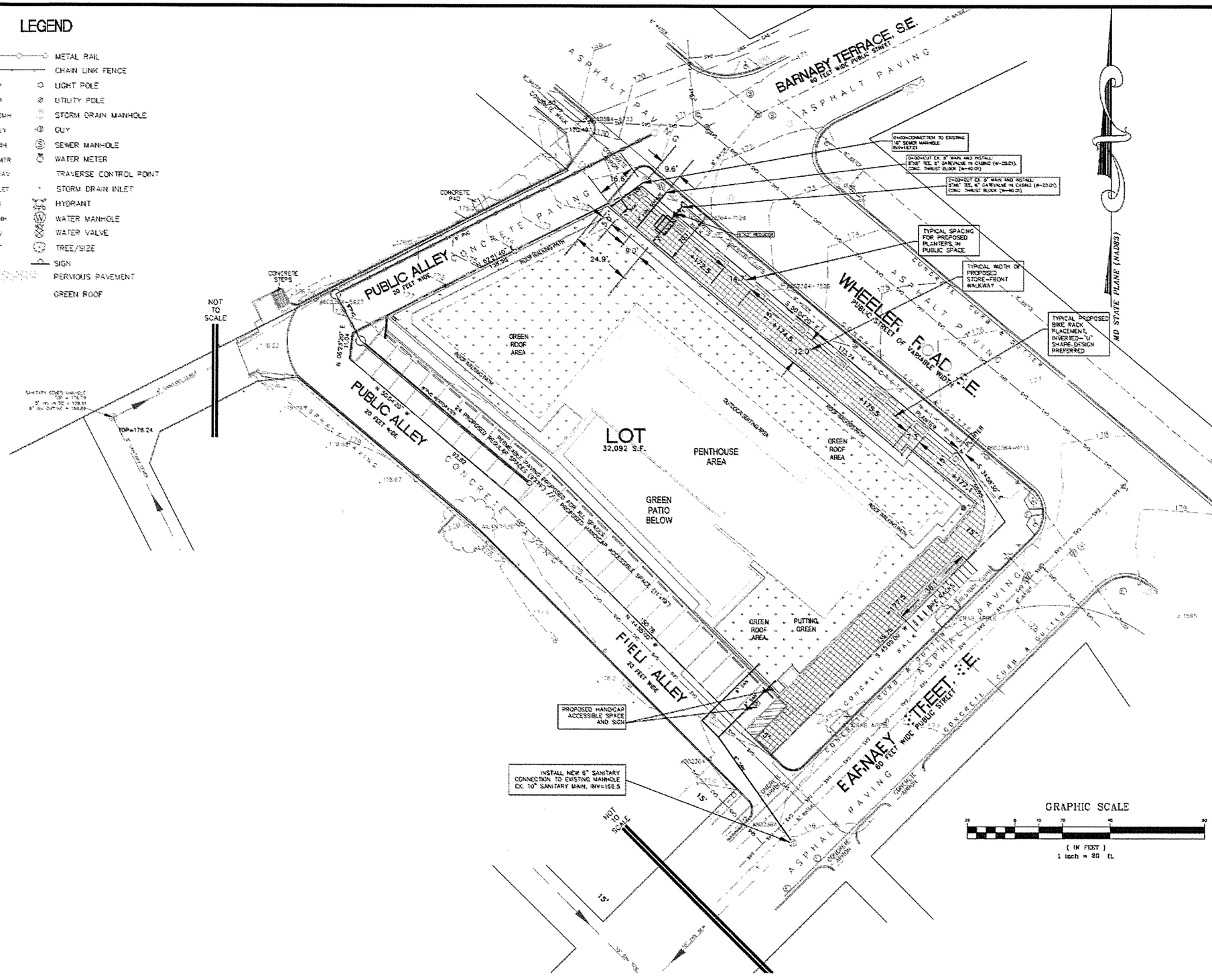
C-1

LEGEND

- METAL RAIL
- CHAIN LINK FENCE
- LP — LIGHT POLE
- UP — UTILITY POLE
- SDMH — STORM DRAIN MANHOLE
- GUY — GUY
- SMH — SEWER MANHOLE
- WMTR — WATER METER
- TRAV — TRAVERSE CONTROL POINT
- INLET — STORM DRAIN INLET
- FH — HYDRANT
- WMH — WATER MANHOLE
- WV — WATER VALVE
- 15" — TREE/SIZE
- SIGN
- PERVIOUS PAVEMENT
- GREEN ROOF



VICINITY MAP
SCALE: 1" = 2000'



C-200

WASHINGTON BUSINESS GROUP

WHEELER RENAISSANCE - OVERALL SITE PLAN

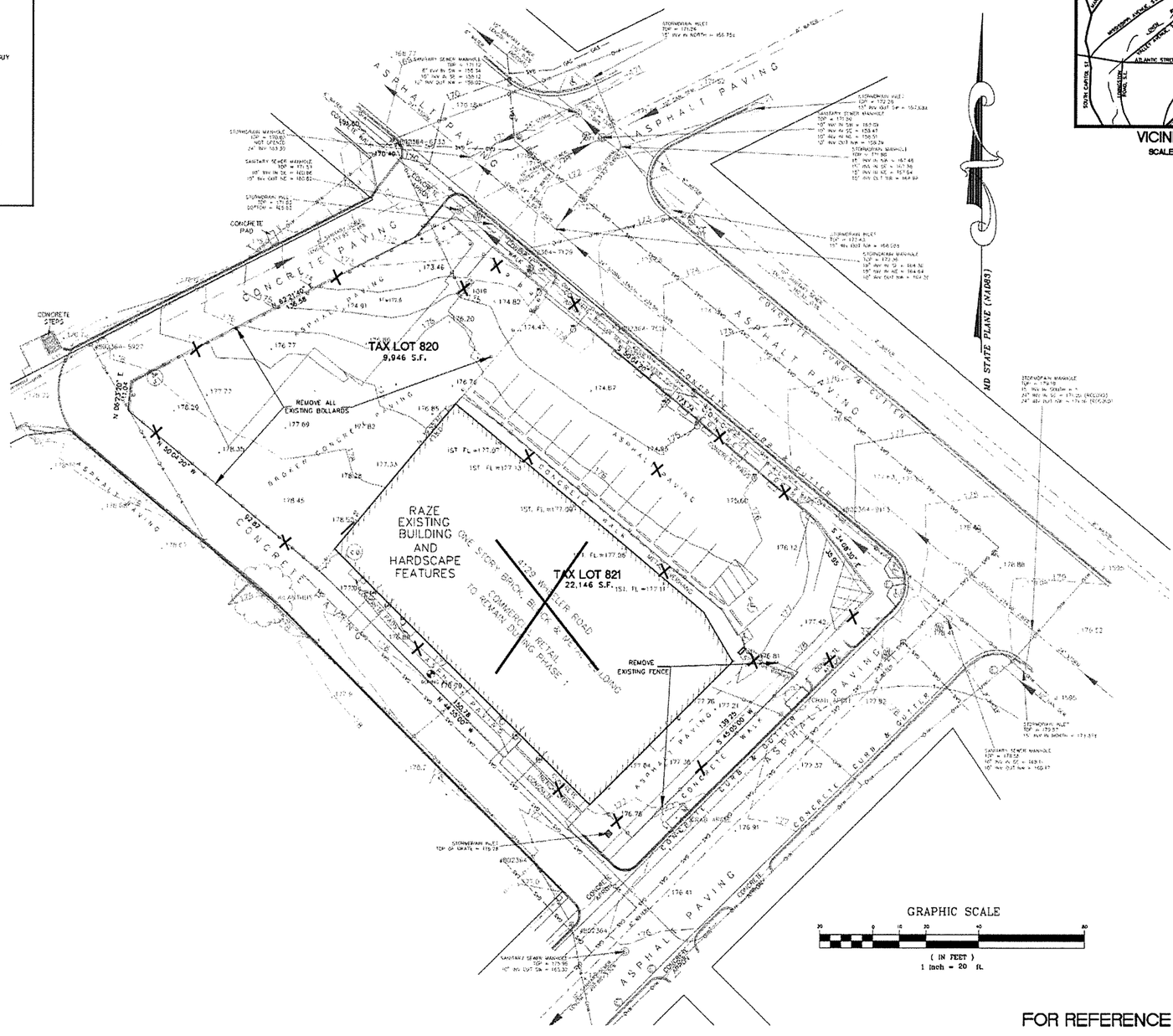
SCALE: **NTS**

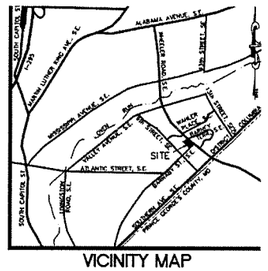
DATE: **04/16/2014**

C-1.1

LEGEND

- HANDICAP RAMP
- BUILDING
- PARKING PAINT STRIPES
- HANDICAP SPACE
- WHEEL STOP
- CHAIN LINK FENCE
- WROUGHT IRON FENCE
- UNDERGROUND TELEPHONE
- OVERHEAD WIRES
- SANITARY SEWER
- GAS LINE
- STORM DRAIN LINE
- WATER LINE
- STORM INLET
- YARD INLET
- STORM MANHOLE
- ELECTRIC METER
- TEST PIT SITE
- SIGN
- MAIL BOX
- RUBBISH CAN
- POWER POLE WITH GUY AND I.D. NUMBER
- ELECTRIC MANHOLE
- GAS VALVE
- GAS METER
- SANITARY MANHOLE
- WATER VALVE
- WATER METER
- FIRE HYDRANT
- WATER MANHOLE
- TRAFFIC LIGHT POLE
- CENTER LINE
- BOLLARD
- GROUND SHOT
- UTILITY HANDHOLE





VICINITY MAP
SCALE: 1" = 2000'

GRAPHIC SCALE
(IN FEET)
1 inch = 20 ft.

FOR REFERENCE ONLY

C-300

WASHINGTON BUSINESS GROUP

WHEELER RENAISSANCE - EXISTING STRUCTURE - RAZE / DEMOLITION

SCALE: NTS

DATE: 04/16/2014

C-2

NARRATIVE

THE PROPERTY IS LOCATED ON TAX LOTS 820 & 821 SQUARE 5925, ON WHEELER ROAD, SE., NEAR THE INTERSECTION WITH BARNABY STREET, SE. THE PROPERTY IS 0.31 ACRES OF LAND ZONED C-1. THE LOT IS A VACANT LOT. THE DEVELOPER WANTS TO CONSTRUCT A CONDOMINIUM RESIDENTIAL BUILDING WITH ABOVE GROUND PARKING ON THE PROPERTY. THE PROJECT WILL BE BUILT IN TWO PHASES, THE FIRST BEING IN TAX LOT 820. ACCESS TO THE PARKING WILL BE FROM THE ALLEY IN THE REAR. PUBLIC WATER AND SEWER IS AVAILABLE IN THE RIGHT OF WAY. WATER AND SEWER WILL BE PROVIDED TO THE PROPOSED BUILDING BY A 3" DOMESTIC WATER LINE WITH A METER VAULT AND AN 8" FIRE SERVICE. SEWER WILL BE PROVIDED BY A 6" PVC THAT WILL SPLIT OUTSIDE THE BUILDING INTO A 6" AND A 4" PVC FROM THE SEWER MAIN IN WHEELER ROAD, SE.

UTILITY DISCLAIMER

THE UNDERGROUND UTILITIES HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM THE INFORMATION AVAILABLE. THIS SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

WASA STANDARD CONSTRUCTION NOTES

1. CONTACT: NOTIFY THE FOLLOWING DC WATER DEPARTMENTS PRIOR TO THE COMMENCEMENT OF UTILITY CONSTRUCTION:
   A. CONSTRUCTION INSPECTION SECTION AT 202-787-4024 AT LEAST TWO WEEKS PRIOR TO THE COMMENCEMENT OF UTILITY CONSTRUCTION TO SCHEDULE PRECONSTRUCTION MEETING.
   B. WATER SERVICES AT 202-612-3400 OR 3460 AT LEAST ONE WEEK PRIOR TO THE COMMENCEMENT OF UTILITY CONSTRUCTION.
   C. SEWER SERVICES AT 202-264-3824 OR 3829 AT LEAST ONE WEEK PRIOR TO THE COMMENCEMENT OF UTILITY CONSTRUCTION.

2. STANDARDS: ALL CONSTRUCTION, MATERIALS, AND APPURTENANCES SHALL COMPLY WITH THE LATEST EDITIONS OF THE DC WATER PROJECT DESIGN MANUAL, STANDARD DETAILS AND DESIGN GUIDELINES, AND SPECIFICATIONS.

3. LEAD SERVICE REPLACEMENT: IF THIS PROJECT INCLUDES THE REPLACEMENT OF A WATER MAIN THAT HAS EXISTING LEAD WATER SERVICE LATERALS, THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE DC WATER CONSTRUCTION INSPECTION SECTION AT 202-787-4024 AT LEAST 90 DAYS PRIOR TO CONSTRUCTION TO ALLOW ADEQUATE TIME TO INITIATE STANDARD LEAD SERVICE REPLACEMENT PROTOCOL.

4. OWNER RESPONSIBILITY: THE OWNER IS RESPONSIBLE FOR ALL WORK AND COSTS ASSOCIATED WITH EXCAVATION, INSTALLATION, AND RESTORATION OF PUBLIC SPACE TO PERFORM A WATER/SEWER CONNECTION/ABANDONMENT. ONCE THE CONTRACTOR HAS OBTAINED A PUBLIC SPACE PERMIT HE/SHE MUST THEN CONTACT DC WATER PRIOR TO PERFORMING THE EXCAVATION TO INSTALL/INSPECT THE UTILITY WORK. THE OWNER SHALL BE HELD RESPONSIBLE FOR ALL DAMAGES TO EXISTING STRUCTURES AND UTILITIES CAUSED BY CONSTRUCTION ACTIVITY.

5. DC WATER RESPONSIBILITY: DC WATER IS ONLY RESPONSIBLE FOR INSTALLATION OF SMALL WATER SERVICE TAPS (2" DIAMETER OR LESS) TO THE PUBLIC MAIN, SMALL WATER SERVICE TAP REMOVALS FROM THE PUBLIC MAIN, FURNISHING AND INSTALLING THE METER IN PUBLIC SPACE, AND INSPECTION OF WORK PERFORMED ON PUBLIC SYSTEMS.

6. MISS UTILITY: CONTACT MISS UTILITY AT 800-257-7777 48 HOURS BEFORE ANY DIGGING.

7. PLAN SET: A SET OF SIGNED AND SEALED AND DC WATER STAMPED PLANS SHALL BE KEPT AT ALL TIMES AT THE JOB SITE ON WHICH ALL CHANGES OR VARIATIONS IN THE WORK, INCLUDING ALL EXISTING UTILITIES, ARE TO BE RECORDED AND/OR CORRECTED DAILY.

8. ABANDONMENTS: THE OWNER MUST PHYSICALLY DISCONNECT EXISTING WATER, SEWER, AND STORM LATERALS THAT ARE TO BE ABANDONED AT THEIR CONNECTION TO THE PUBLIC MAIN..

9. UNMETERED WATER: THERE SHALL BE NO UNMETERED CONNECTIONS TO THE CITY'S WATER SYSTEM, INCLUDING CONNECTIONS BYPASSING METERS FOR TESTING ON-SITE PLUMBING OR FOR OBTAINING CONSTRUCTION WATER.

10. PRESSURE TESTING AGAINST VALVES: PRESSURE TESTING AGAINST VALVES WILL NOT BE ALLOWED.

11. WATER METER INSTALLATION: TO SCHEDULE THE INSTALLATION OF A DOMESTIC WATER-METER CONTACT DC WATER AT 202-612-3600. DC WATER WILL FURNISH AND INSTALL THE METER AFTER THE CONNECTION TO THE MAIN HAS BEEN MADE AND THE METER PIT/VAULT HAS BEEN INSTALLED.

12. CROSS CONTAMINATION CONTROL: ASSE 1048 CERTIFIED BACKFLOW PREVENTION ASSEMBLIES ARE REQUIRED ON ALL FIRE SERVICES AND ARE TO BE LOCATED INSIDE THE BUILDING (UNLESS AN EXTERNAL LOCATION IS NECESSARY OR REQUIRED BY DC WATER) WHERE IT IS SUPPLIED, OWNED, OPERATED, AND MAINTAINED BY THE OWNER. DC WATER DOES NOT FURNISH NOR INSTALL FIRE DOUBLE CHECK DETECTOR FIRE PROTECTION BACKFLOW PREVENTION ASSEMBLIES.

12. WATER VALVE OPERATION: THE CONTRACTOR IS REQUIRED TO COORDINATE WITH DC WATER FOR ALL NECESSARY WATER MAIN SHUT DOWNS WITH ADEQUATE ADVANCED NOTICE. ONLY DC WATER EMPLOYEES MAY SHUT DOWN A PUBLIC WATER MAIN. A CERTIFIED PLUMBER IS ONLY AUTHORIZED TO TURN OFF VALVES INSIDE METER PITS.

13. UTILITY SERVICE DISRUPTION: PHASE ALL UTILITY WORK TO MAINTAIN UTILITY SERVICES TO THE SURROUNDING AREA DURING ALL PHASES OF CONSTRUCTIAG. LIMIT REQUIRED UTILITY SHUT-DOWNS IN NUMBER AND DURATION. COORDINATE THESE SHUT DOWNS WITH DC WATER CONSTRUCTION INSPECTION STAFF.

14. WATER VALVE OPERATION: THE CONTRACTOR IS REQUIRED TO COORDINATE WITH DC WATER FOR ALL NECESSARY WATER MAIN SHUT DOWNS WITH ADEQUATE ADVANCED NOTICE. ONLY DC WATER EMPLOYEES MAY SHUT DOWN A PUBLIC WATER MAIN. A CERTIFIED PLUMBER IS ONLY AUTHORIZED TO TURN OFF VALVES INSIDE METER PITS.

15. WATER GATE VALVE LOCATION: LOCATE GATE VALVES FOR DOMESTIC AND FIRE SERVICES AS CLOSE TO THE PUBLIC WATER MAIN TEE AS POSSIBLE. HOWEVER, IF NECESSARY ADJUSTMENTS ARE REQUIRED DUE TO CONFLICTS COORDINATE WITH A DC WATER INSPECTOR.

16. MATERIAL: THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING SHOP CUTS TO THE APPROPRIATE DC WATER OFFICE FOR APPROVAL OR OBTAINING A DC WATER APPROVAL STAMP FOR ALL WORK IN PUBLIC SPACE IN ADVANCE OF INSTALLATION. ONLY APPROVED MATERIALS MAY BE USED.

17. TEMPORARY CONDITIONS MINIMUM COVER: A NOMINAL FOUR FEET OF COVER IS REQUIRED FOR ALL WATER MAINS AT FINAL GRADE. COVER OF LESS THAN FOUR FEET REQUIRES DC WATER APPROVAL.

18. AS-BUILT: DEVELOPERS, CONTRACTORS AND/OR PLUMBERS MUST SUBMIT FINAL CONSTRUCTION AS-BUILT INFORMATION TO THE APPROPRIATE DC WATER INSPECTOR(S) FOR REVIEW AND APPROVAL UPON COMPLETION OF INSTALLATION OF NEW SERVICES OR ABANDONMENT OF EXISTING SERVICES. WHEN THE FINAL AS-BUILT IS APPROVED THE DEPOSIT WILL BE RETURNED TO THE APPLICANT. SEE DC WATER AS-BUILT REQUIREMENTS FOR ADDITIONAL INFORMATION.

19. CONFLICTS: THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION OF EXISTING DC WATER INFRASTRUCTURE PRIOR TO INSTALLATION OF PROPOSED UTILITIES. A MINIMUM OF ONE FOOT VERTICAL AND FIVE FEET HORIZONTAL CLEARANCE FROM OTHER UTILITIES SHALL BE MAINTAINED.

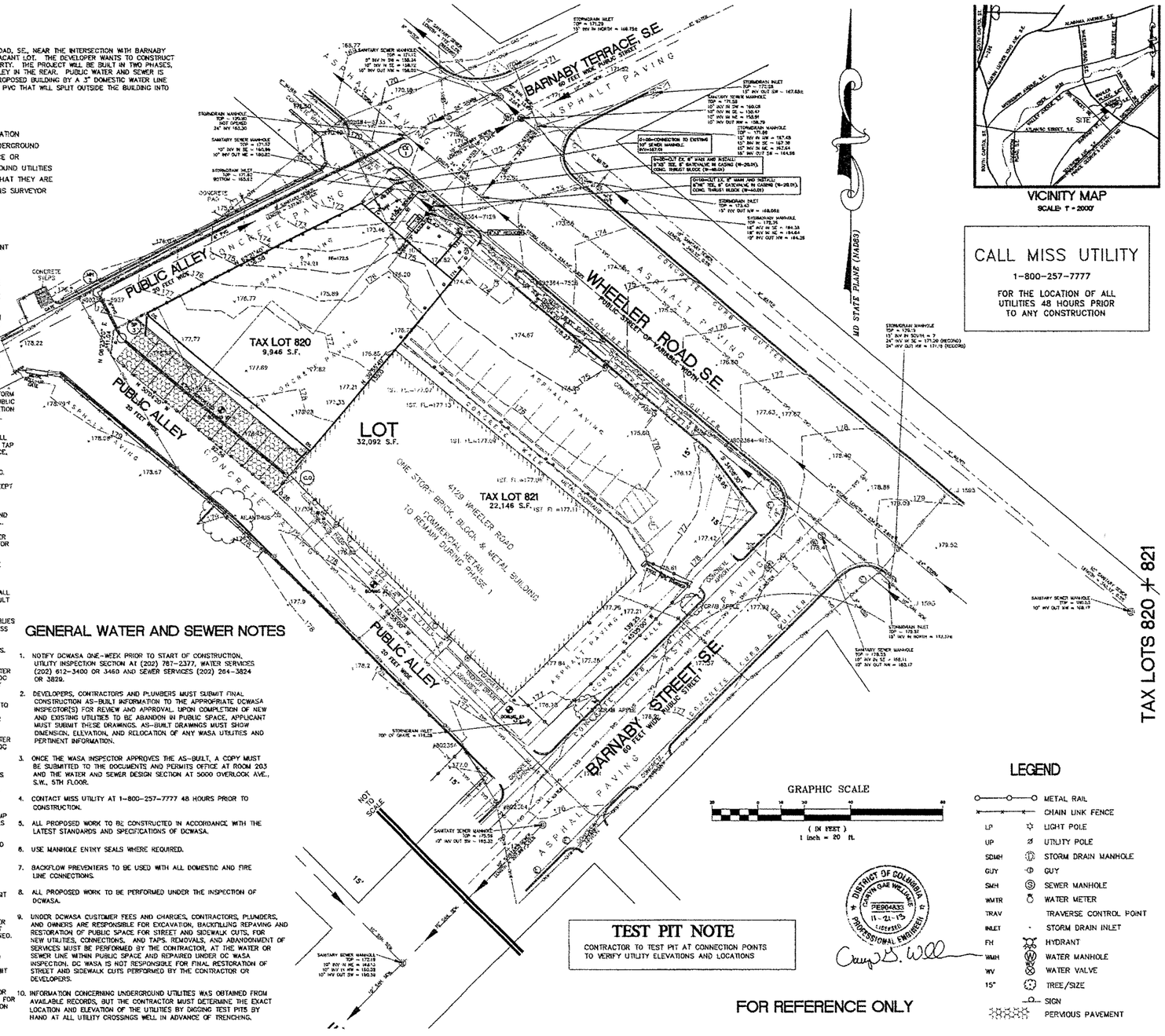
20. FIRE HYDRANT USE: THE USE OF A FIRE HYDRANT AS A WATER SOURCE IS PROHIBITED UNLESS A PERMIT HAS BEEN OBTAINED FROM DC WATER FOR USE OF A SPECIFIC HYDRANT(S). DAILY OR EXTEND USE PERMITS CAN BE OBTAINED FROM THE DC WATER PERMIT OPERATIONS DEPARTMENT.

21. FIRE HYDRANT STATUS: THE CONTRACTOR SHALL NOTIFY FEMS AT 202-277-1889, PRIOR TO TAKING ANY FIRE HYDRANT OUT OF SERVICE OR RENDERING ANY HYDRANT INACCESSIBLE FOR ANY REASON. FEMS IS ALSO TO BE PROVIDED WITH THE LOCATION OF ANY NEW INSTALLATION OF PRIVATE FIRE HYDRANTS.

22. DC WATER SAFETY OFFICE: THE DC WATER SAFETY OFFICE CAN BE CONTACTED AT 202-787-4350.

GENERAL WATER AND SEWER NOTES

1. NOTIFY DCWASA ONE-WEEK PRIOR TO START OF CONSTRUCTION, UTILITY INSPECTION SECTION AT (202) 787-2377, WATER SERVICES (202) 612-3400 OR 3460 AND SEWER SERVICES (202) 264-3824 OR 3829.
2. DEVELOPERS, CONTRACTORS AND PLUMBERS MUST SUBMIT FINAL CONSTRUCTION AS-BUILT INFORMATION TO THE APPROPRIATE DCWASA INSPECTOR(S) FOR REVIEW AND APPROVAL. UPON COMPLETION OF NEW AND EXISTING UTILITIES TO BE ABANDON IN PUBLIC SPACE, APPLICANT MUST SUBMIT THESE DRAWINGS. AS-BUILT DRAWINGS MUST SHOW DIMENSION, ELEVATION, AND RELOCATION OF ANY WASA UTILITIES AND PERTINENT INFORMATION.
3. ONCE THE WASA INSPECTOR APPROVES THE AS-BUILT, A COPY MUST BE SUBMITTED TO THE DOCUMENTS AND PERMITS OFFICE AT ROOM 203 AND THE WATER AND SEWER DESIGN SECTION AT 5000 OVERLOOK AVE., S.W., 5TH FLOOR.
4. CONTACT MISS UTILITY AT 1-800-257-7777 48 HOURS PRIOR TO CONSTRUCTION.
5. ALL PROPOSED WORK TO BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF DCWASA.
6. USE MANHOLE ENTRY SEALS WHERE REQUIRED.
7. BACKFLOW PREVENTERS TO BE USED WITH ALL DOMESTIC AND FIRE LINE CONNECTIONS.
8. ALL PROPOSED WORK TO BE PERFORMED UNDER THE INSPECTION OF DCWASA.
9. UNDER DCWASA CUSTOMER FEES AND CHARGES, CONTRACTORS, PLUMBERS, AND OWNERS ARE RESPONSIBLE FOR EXCAVATION, BACKFILLING REPAVING AND RESTORATION OF PUBLIC SPACE FOR STREET AND SIDEWALK CUTS, FOR NEW UTILITIES, CONNECTIONS, AND TAPS. REMOVALS, AND ABANDONMENT OF SERVICES MUST BE PERFORMED BY THE CONTRACTOR, AT THE WATER OR SEWER LINE WITHIN PUBLIC SPACE AND REPAIRED UNDER DC WASA INSPECTION. DC WASA IS NOT RESPONSIBLE FOR FINAL RESTORATION OF STREET AND SIDEWALK CUTS PERFORMED BY THE CONTRACTOR OR DEVELOPERS.
10. INFORMATION CONCERNING UNDERGROUND UTILITIES WAS OBTAINED FROM AVAILABLE RECORDS, BUT THE CONTRACTOR MUST DETERMINE THE EXACT LOCATION AND ELEVATION OF THE UTILITIES BY DIGGING TEST PITS BY HAND AT ALL UTILITY CROSSINGS WELL IN ADVANCE OF TRENCHING.



VICINITY MAP
SCALE: 1" = 2000'

CALL MISS UTILITY
1-800-257-7777
FOR THE LOCATION OF ALL UTILITIES 48 HOURS PRIOR TO ANY CONSTRUCTION

GRAPHIC SCALE
(IN FEET)
1 inch = 20 ft.

TEST PIT NOTE

CONTRACTOR TO TEST PIT AT CONNECTION POINTS TO VERIFY UTILITY ELEVATIONS AND LOCATIONS

FOR REFERENCE ONLY

DISTRICT OF COLUMBIA
CARRYN GAE WILLIAMS
PE904433
11-21-15
LICENSED
PROFESSIONAL ENGINEER

LEGEND

	METAL RAIL
	CHAIN LINK FENCE
LP	LIGHT POLE
UP	UTILITY POLE
SDMH	STORM DRAIN MANHOLE
GUY	GUY
SMH	SEWER MANHOLE
WMTR	WATER METER
TRAV	TRAVERSE CONTROL POINT
INLET	STORM DRAIN INLET
FH	HYDRANT
WMH	WATER MANHOLE
WV	WATER VALVE
15"	TREE/SIZE
	SIGN
	PERVIOUS PAVEMENT

C-400

WASHINGTON BUSINESS GROUP

WHEELER RENAISSANCE - CIVIL WATER / SEWER PLAN

SCALE: NTS
DATE: 04/16/2014

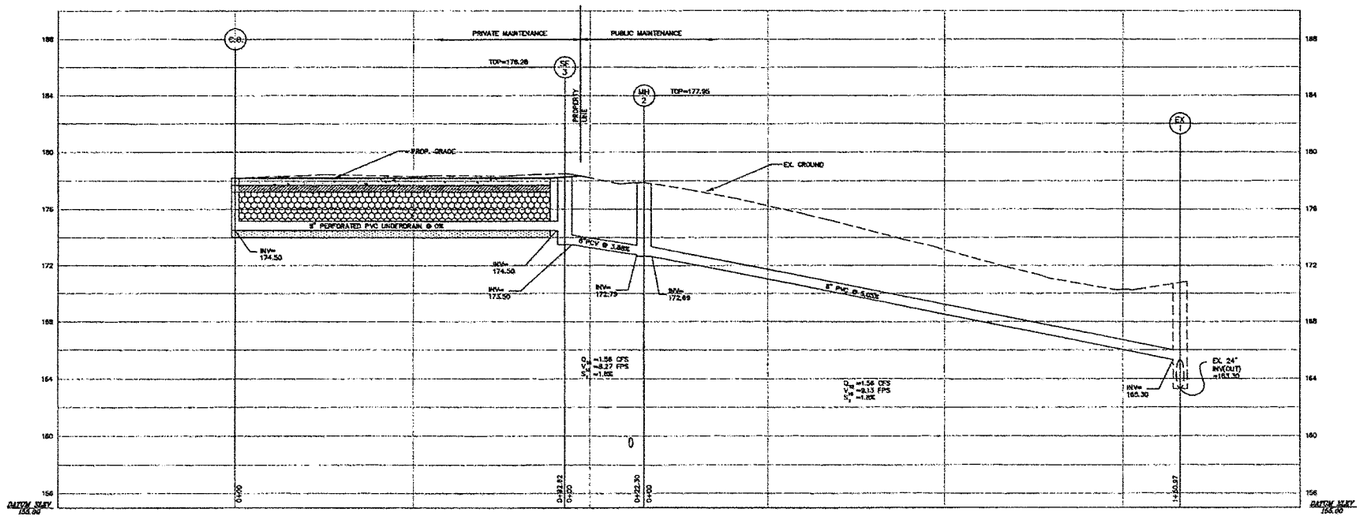
C-3

STRUCTURE SCHEDULE

NO.	TYPE	STD	TOP	INVERTS
MH-2	48" MANHOLE	DCWASA 5-20.01	177.95	172.69 (PROP 8" OUT) 172.79 (PROP 8" IN)
SF-3	STORMFILTER MANHOLE	SEE PLAN	178.28	173.50 (PROP 8" OUT) 174.50 (PROP 8" IN)
C.O.	8" CLEAN OUT	DCWASA 5-80.02	178.18	174.50 (PROP 8" OUT)

PIPE SCHEDULE

SIZE	TYPE	CLASS	LENGTH
8"	PERF PVC	SDR35	93 FT
8"	PVC	SDR35	174 FT



STORM DRAIN PROFILE

SCALE: HOR: 1"=20'; VERT: 1"=5'

SWM STRUCTURE COMPUTATIONS

WATER QUANTITY COMPUTATIONS

STORMWATER RUNOFF AT STUDY POINT

TOTAL DRAINAGE AREA TO STUDY POINT = 0.23 AC. = 9946 SF
IMPERVIOUS AREA = 0.23 Ac. = 9946 SF
GREEN AREA = 0.00 Ac. = 0 SF
TIME OF CONCENTRATION, T_c
T_c = 5 MIN
RUNOFF COEFFICIENT, C
C = 0.90

1. PEAK DISCHARGE FROM 15 YEAR STORM
   INTENSITY OF 15 YEAR STORM EVENT WITH T_c = 5 MIN
   I_{15}= 7.56 IN/HR.
   PEAK RUNOFF FOR 15 YEAR STORM EVENT, Q_{Pk}
   $Q_{Pk} = CI_{15}$ A = 0.90(7.58) 0.23 = 1.56 CFS

2. PEAK DISCHARGE FROM 2 YEAR STORM
   INTENSITY OF 2 YEAR STORM EVENT WITH T = 5 MIN
   I_2= 5.28 IN/HR.
   PEAK RUNOFF FOR 2 YEAR STORM EVENT, Q_{Pk}
   $Q_{Pk} = CI_2$ A = 0.35(5.28) 0.23 = 0.43 CFS

QUANTITY STORAGE CALCULATIONS

3. VOLUME OF STORAGE NEEDED (V_s)
   V_s= 1.25(Q_{15}- Q_2)300
   V = 1.25(1.56 -- 0.43)300 = 424 CF

WATER QUALITY COMPUTATIONS

STORMWATER RUNOFF AT STUDY POINT

TOTAL DRAINAGE AREA TO STUDY POINT = .23 AC. = 9946 S.F.
IMPERVIOUS AREA = 0.23 Ac. = 9946 SF
$WQ_v = \frac{.5\ I_a}{12} = \frac{(0.5)9946}{12}$ = 414 CF
414 CF < 424 CF USE 424 CF FOR VOLUME

STORAGE REQIRED

VOL. STONE = $\frac{424}{.40}$ CF = 1060 CF
STORAGE PROVIDED = 2.7'X9'X90' = 2187 CF
STORAGE PROVIDED = 2187 CF > 1060 CF OK

NOTE: STORMWATER RUNOFF CALCULATIONS ARE BASED ON THE WASHINGTON, DC WATERSHED PROTECTION DIVISION ACCEPTABLE HYDROLOGIC METHODS AND MODELS. STORAGE CALCULATIONS ARE BASED ON METHODS FOR COMPUTING CHANNEL STORAGE PROTECTION STORAGE VOLUME.

STATEMENT BY PERSON RESPONSIBLE FOR MAINTENANCE

THE UNDERSIGNED AGREES TO MAINTAIN AND OPERATE THE DISCHARGE FACILITIES IN SUCH A MANNER AS TO COMPLY WITH THE PROVISIONS OF SECTION 526 THROUGH 535 OF DCMR-21, CHAPTER 5. RESPONSIBILITY FOR MAINTENANCE AND OPERATION MAY BE TRANSFERRED TO ANOTHER ENTITY UPON WRITTEN NOTICE TO THE WATERSHED PROTECTION

RESPONSIBILITY, CERTIFYING THAT THE TRANSFER OF RESPONSIBILITY FOR MAINTENANCE AND OPERATION IN COMPLIANCE WITH SECTION 526 THROUGH 535 OF DCMR-21, CHAPTER 5 HAS BEEN ACCEPTED.

_____

OWNER/DEVELOPER

STATEMENT BY PROFESSIONAL ENGINEER REGISTERED IN THE DISTRICT OF COLUMBIA

THIS IS TO CERTIFY THAT THE ENGINEERING FEATURES OF THIS STORMWATER DISCHARGE FACILITY HAVE BEEN DESIGNED/EXAMINED BY ME AND FOUND TO BE IN CONFORMITY WITH MODERN ENGINEERING PRINCIPLES APPLICABLE TO THE TREATMENT AND DISPOSAL OF STORMWATER POLLUTANTS. I FURTHER CERTIFY THAT THE FACILITY HAS BEEN DESIGNED IN ACCORDANCE WITH THE SPECIFICATION REQUIRED UNDER SECTION 526 THROUGH 535 OF DCMR-21, CHAPTER 5. IT IS ALSO STATED THAT THE UNDERSIGNED HAS FURNISHED THE APPLICANT WITH A SET OF MAINTENANCE INSTRUCTIONS FOR THE MAINTENANCE AND OPERATION OF THE STORMWATER DISCHARGE FACILITY.

Caryn G. Williams 11-21-13

CARYN G. WILLIAMS, PE. DATE
DISTRICT OF COLUMBIA

DISTRICT OF COLUMBIA * CARYN GAE WILLIAMS * PE904833 LICENSED PROFESSIONAL ENGINEER

AS-BUILT CERTIFICATION BY PROFESSIONAL ENGINEER

WITHIN 21 DAYS AFTER COMPLETION OF CONSTRUCTION OF THE STORMWATER DISCHARGE FACILITY, PLEASE SEND THIS PAGE TO THE WATERSHED PROTECTION DIVISION -- DEPARTMENT OF HEALTH.

1. STORMWATER DISCHARGE FACILITY INFORMATION
   SOURCE NAME: _____
   SOURCE LOCATION: STREET: _____
   CITY: _____
   DATE ISSUED: _____

2. AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THIS STORMWATER DISCHARGE FACILITY HAS BEEN BUILT

THAT ANY SUBSTANTIAL DEVIATIONS (NOTED BELOW) WILL NOT PREVENT THE SYSTEM FROM FUNCTIONING IN COMPLIANCE WITH THE REQUIREMENTS OF SECTION 526 THROUGH 535 OF DCMR-21, CHAPTER 5 WHEN PROPERLY MAINTAINED AND OPERATED. THESE DETERMINATIONS HAVE BEEN BASED UPON ON-SITE OBSERVATION OF CONSTRUCTION, SCHEDULED AND

I HAVE ENCLOSED ONE SET OF AS-BUILT ENGINEERING DRAWINGS.

_____
CARYN G. WILLIAMS, PE DATE

3204 TOWER OAKS BOULEVARD, SUITE 200-A
ROCKVILLE, MD 20852
(301) 762-9001

SUBSTANTIAL DEVIATIONS FROM THE APPROVED PLANS & SPECIFICATIONS

_____

_____

_____

TAX LOTS 820 + 821

FOR REFERENCE ONLY

C-500

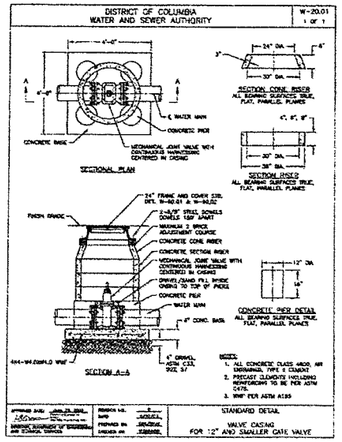
WASHINGTON BUSINESS GROUP

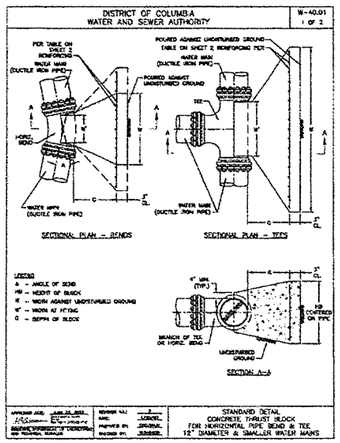
WHEELER RENAISSANCE - WATER / SEWER PROFILES

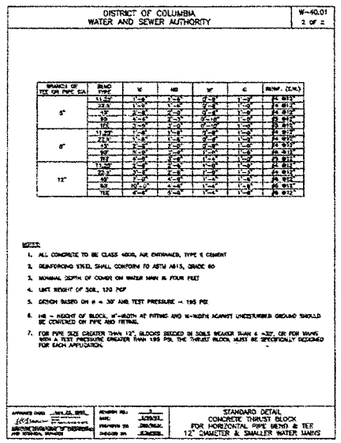
SCALE: NTS

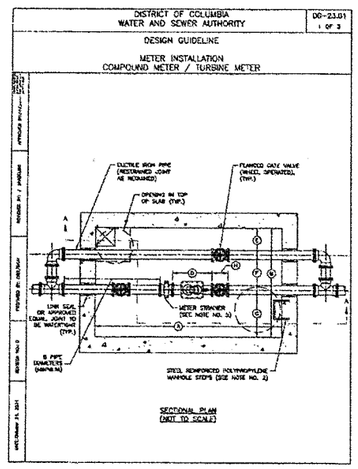
DATE: 04/16/2014

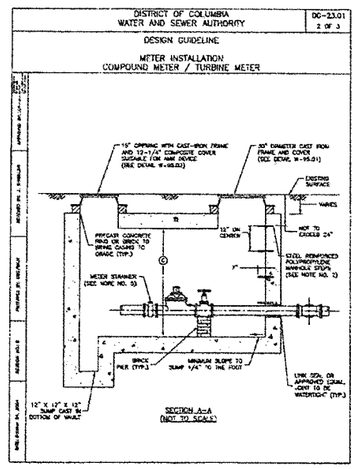
C-4

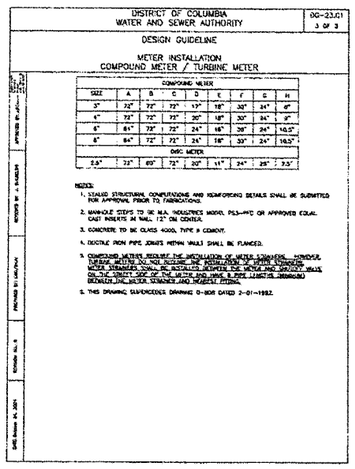




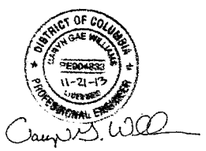








TAX LOTS 820 + 821



FOR REFERENCE ONLY

C-600

WASHINGTON BUSINESS GROUP

WHEELER RENAISSANCE - WATER / SEWER DETAILS

SCALE: NTS

DATE: 04/16/2014

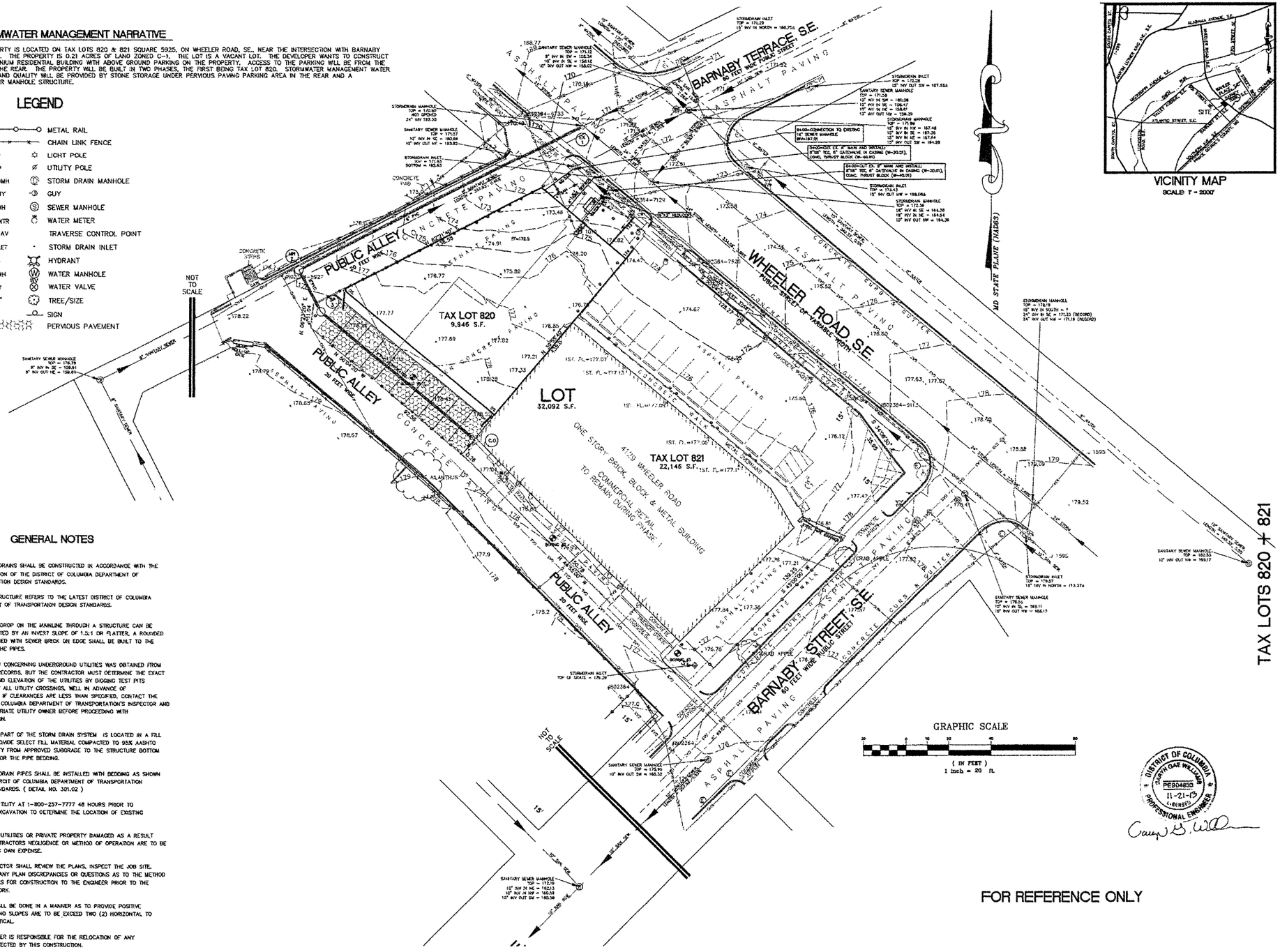
C-5

STORMWATER MANAGEMENT NARRATIVE

THE PROPERTY IS LOCATED ON TAX LOTS 820 & 821 SQUARE 5925, ON WHEELER ROAD, SE., NEAR THE INTERSECTION WITH BARNABY STREET, SE. THE PROPERTY IS 0.23 ACRES OF LAND ZONED C-1. THE LOT IS A VACANT LOT. THE DEVELOPER WANTS TO CONSTRUCT A CONDOMINIUM RESIDENTIAL BUILDING WITH ABOVE GROUND PARKING ON THE PROPERTY. ACCESS TO THE PARKING WILL BE FROM THE ALLEY IN THE REAR. THE PROPERTY WILL BE BUILT IN TWO PHASES, THE FIRST BEING TAX LOT 820. STORMWATER MANAGEMENT WATER QUANTITY AND QUALITY WILL BE PROVIDED BY STONE STORAGE UNDER PERVIOUS PAVING PARKING AREA IN THE REAR AND A STORMFILTER MANHOLE STRUCTURE.

LEGEND

- METAL RAIL
- CHAIN LINK FENCE
- LP — LIGHT POLE
- UP — UTILITY POLE
- SDMH — STORM DRAIN MANHOLE
- GUY — GUY
- SMH — SEWER MANHOLE
- WMTR — WATER METER
- TRAV — TRAVERSE CONTROL POINT
- INLET — STORM DRAIN INLET
- FH — HYDRANT
- WMH — WATER MANHOLE
- WV — WATER VALVE
- 15" — TREE/SIZE
- SIGN
- PERVIOUS PAVEMENT



GRAPHIC SCALE
(IN FEET)
1 inch = 20 ft.

GENERAL NOTES

1. ALL STORM DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE DISTRICT OF COLUMBIA DEPARTMENT OF TRANSPORTATION DESIGN STANDARDS.
2. TYPE OF STRUCTURE REFERS TO THE LATEST DISTRICT OF COLUMBIA DEPARTMENT OF TRANSPORTATION DESIGN STANDARDS.
3. WHERE THE DROP ON THE MAINLINE THROUGH A STRUCTURE CAN BE ACCOMMODATED BY AN INVERT SLOPE OF 1.5:1 OR FLATTER, A ROUNDED CHANNEL LINED WITH SEWER BRICK OR EQUAL SHALL BE BUILT TO THE CROWN OF THE PIPES.
4. INFORMATION CONCERNING UNDERGROUND UTILITIES WAS OBTAINED FROM AVAILABLE RECORDS, BUT THE CONTRACTOR MUST DETERMINE THE EXACT LOCATION AND ELEVATION OF THE UTILITIES BY DIGGING TEST PITS BY HAND AT ALL UTILITY CROSSINGS, WELL IN ADVANCE OF TRENCHING. IF CLEARANCES ARE LESS THAN SPECIFIED, CONTACT THE DISTRICT OF COLUMBIA DEPARTMENT OF TRANSPORTATION'S INSPECTOR AND THE APPROPRIATE UTILITY OWNER BEFORE PROCEEDING WITH CONSTRUCTION.
5. WHERE ANY PART OF THE STORM DRAIN SYSTEM IS LOCATED IN A FILL SECTION, PROVIDE SELECT FILL MATERIAL COMPACTED TO 95% AASHTO T-99 DENSITY FROM APPROVED SUBGRADE TO THE STRUCTURE BOTTOM SLABS AND/OR THE PIPE BEDDING.
6. ALL STORM DRAIN PIPES SHALL BE INSTALLED WITH BEDDING AS SHOWN IN THE DISTRICT OF COLUMBIA DEPARTMENT OF TRANSPORTATION DESIGN STANDARDS. (DETAIL NO. 301.02)
7. CALL MISS UTILITY AT 1-800-257-7777 48 HOURS PRIOR TO BEGINNING EXCAVATION TO DETERMINE THE LOCATION OF EXISTING UTILITIES.
8. REPAIRS TO UTILITIES OR PRIVATE PROPERTY DAMAGED AS A RESULT OF THE CONTRACTORS NEGLIGENCE OR METHOD OF OPERATION ARE TO BE MADE AT HIS OWN EXPENSE.
9. THE CONTRACTOR SHALL REVIEW THE PLANS, INSPECT THE JOB SITE, AND REFER ANY PLAN DISCREPANCIES OR QUESTIONS AS TO THE METHOD OR MATERIALS FOR CONSTRUCTION TO THE ENGINEER PRIOR TO THE START OF WORK.
10. GRADING SHALL BE DONE IN A MANNER AS TO PROVIDE POSITIVE DRAINAGE. NO SLOPES ARE TO BE EXCEED TWO (2) HORIZONTAL TO ONE (1) VERTICAL.
11. THE DEVELOPER IS RESPONSIBLE FOR THE RELOCATION OF ANY UTILITIES AFFECTED BY THIS CONSTRUCTION.

DISTRICT OF COLUMBIA
CARLTON GAE WILLIAMS
PE904835
11-21-13
LICENSED
PROFESSIONAL ENGINEER

FOR REFERENCE ONLY

C-700

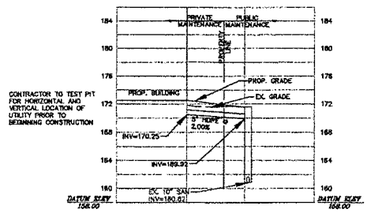
WASHINGTON BUSINESS GROUP

WHEELER RENAISSANCE - STORM WATER MANAGEMENT PLAN

SCALE: NTS

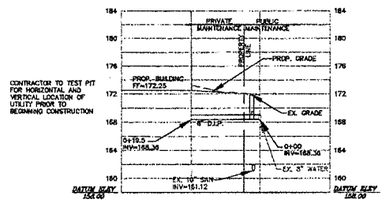
DATE: 04/16/2014

C-6



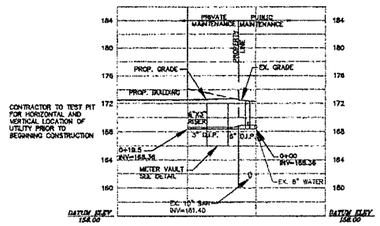
SEWER PROFILES

SCALE: HOR: 1"=20'; VERT: 1"=10'



FIRE SERVICE PROFILE

SCALE: HOR: 1"=20'; VERT: 1"=10'



WATER PROFILE

SCALE: HOR: 1"=20'; VERT: 1"=5'

DISTRICT OF COLUMBIA
DARYN GAE WILLIAMS
PE904833
11-21-13
LICENSED
PROFESSIONAL ENGINEER

C-800

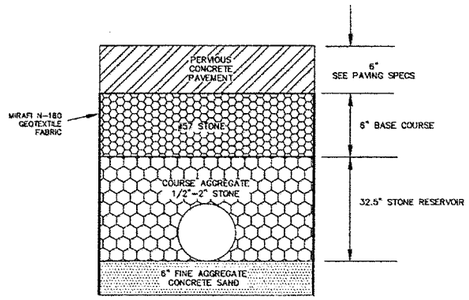
WASHINGTON BUSINESS GROUP

WHEELER RENAISSANCE - STORM WATER PROFILES

SCALE: **NTS**

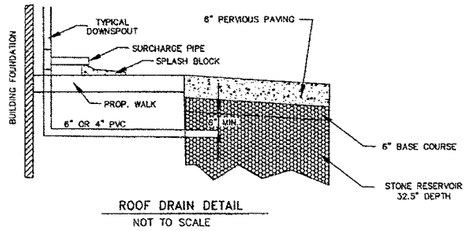
DATE: **04/16/2014**

FOR REFERENCE ONLY



PERVIOUS PAVEMENT DETAIL (TYP)

NOT TO SCALE



ROOF DRAIN DETAIL

NOT TO SCALE

DISTRICT OF COLUMBIA
CARVIN GAE WILLIAMS
PE904933
11-21-13
PROFESSIONAL ENGINEER

SAND SPECIFICATIONS

WASHED ASTM C33 FINE AGGREGATE CONCRETE SAND IS UTILIZED FOR STORMWATER MANAGEMENT APPLICATIONS IN DISTRICT OF COLUMBIA. IN ADDITION TO THE ASTM C33 SPECIFICATION, SAND MUST MEET ALL OF THE FOLLOWING CONDITIONS:

1. SAND MUST MEET GRADATION REQUIREMENTS FOR ASTM C-33 FINE AGGREGATE CONCRETE SAND. AASHTO M-6 GRADATION IS ALSO ACCEPTABLE.

2. SAND MUST BE SILICA BASED...NO LIMESTONE BASED PRODUCTS MAY BE USED. IF THE MATERIAL IS WHITE OR GRAY IN COLOR, IT IS PROBABLY NOT ACCEPTABLE.

3. SAND MUST BE CLEAN. NATURAL UNWASHED SAND DEPOSITS MAY NOT BE USED. LIKEWISE, SAND THAT HAS BECOME CONTAMINATED BY IMPROPER STORAGE OR INSTALLATION PRACTICES WILL BE REJECTED.

4. MANUFACTURED SAND OR STONE DUST IS NOT ACCEPTABLE UNDER ANY CIRCUMSTANCE.

NOTE

THE PERVIOUS CONCRETE INSTALLER MUST BE NRMCA CERTIFIED.

GEOTEXTILE SPECIFICATION

FOR GEOTEXTILE USE ON THIS PROJECT USE MIRAFI N-160, (N SERIES, NON WOVEN FABRIC, 4 TO 6 OZ. IN WEIGHT)

PERVIOUS CONCRETE SPECIFICATIONS

DESIGN THICKNESS – PERVIOUS CONCRETE APPLICATIONS SHALL BE DESIGNED SO THAT THE THICKNESS OF THE CONCRETE SLAB SHALL SUPPORT THE TRAFFIC AND VEHICLE TYPES THAT WILL BE CARRIED. APPLICATIONS MAY BE DESIGNED USING EITHER STANDARD PAVEMENT PROCEDURES (e.g., AASHTO, ACI 325.R, ACI 330R) OR USING STRUCTURAL VALUES DERIVED FROM FLEXIBLE PAVEMENT DESIGN PROCEDURES.

MIX & INSTALLATION – TRADITIONAL PORTLAND CEMENTS (ASTM C 150, C 1157) MAY BE USED IN PERVIOUS CONCRETE APPLICATIONS. PHOSPHORUS ADMIXTURES MAY ALSO BE USED. MATERIALS SHOULD BE TESTED (e.g., TRIAL BATCHING) PRIOR TO CONSTRUCTION SO THAT CRITICAL PROPERTIES (e.g., SETTLING TIME, RATE OF STRENGTH DEVELOPMENT, POROSITY, PERMEABILITY) CAN BE DETERMINED.

AGGREGATE – PERVIOUS CONCRETE CONTAINS A LIMITED FINE AGGREGATE CONTENT. COMMONLY USED GRADATIONS INCLUDE ASTM C 33 NO. 67 (3/4 IN. TO NO. 4), NO. 8 (3/8 IN. TO NO. 16) AND NO. 89 (3/8 IN. TO NO. 50) SIEVES. SINGLE-SIZED AGGREGATE (UP TO 1 INCH) MAY ALSO BE USED.

WATER CONTENT – WATER-TO-CEMENT RATIOS BETWEEN 0.27 AND 0.30 ARE USED ROUTINELY WITH PROPER INCLUSION OF CHEMICAL ADMIXTURES. WATER QUALITY SHOULD MEET ACI 30o. AS A GENERAL RULE, POTABLE WATER SHOULD BE USED ALTHOUGH RECYCLED CONCRETE PRODUCTION WATER MEETING ASTM C 94 OR AASHTO M 157 MAY ALSO BE USED.

ADMIXTURES – CHEMICAL ADMIXTURES (e.g., RETARDERS OR HYDRATION) ARE USED TO OBTAIN SPECIAL PROPERTIES IN PERVIOUS CONCRETE. USE OF ADMIXTURES SHOULD MEET ASTM C 494 (CHEMICAL ADMIXTURES) AND ASTM C 260 (AIR ENTRAINING ADMIXTURES) AND CLOSELY FOLLOW MANUFACTURER'S RECOMMENDATIONS.

BASE COURSE – THE BASE COURSE SHALL BE AASHTO NO. 3 OR 4 COURSE AGGREGATE (1 1/2"-2" STONE) WITH AN ASSUMED OPEN PORE SPACE OF .30% (n=0.30).

PARKING AREAS MUST HAVE AN OVER-DRAIN INCORPORATED INTO THE DESIGN.

ENGINEERS MUST USE THE MANUFACTURER'S RECOMMENDATIONS IN THEIR SITE SPECIFIC DESIGNS. IN THE CASE OF POROUS CONCRETE USE THE NATIONAL READY MIX CONCRETE ASSOCIATION (NRMCA) RECOMMENDATIONS.

POROUS CONCRETE TO BE INSTALLED BY A NRMCA CERTIFIED INSTALLER.

POROUS CONCRETE MUST NOT BE FLOATED OR TROWELED. A STEEL ROLLER SHOULD BE USED FOR COMPACTION AND FINISHING. CONTROL JOINTS SHOULD BE CUT A MINIMUM OF EVERY TWENTY FEET USING A SPECIAL ROLLER JOINT TOOL.

EASMENTS AND COVENANTS ARE REQUIRED FOR ALL COMMERCIAL USES AND FOR PARKING LOTS.

SIGNS; AT LEAST EIGHTEEN INCHES BY TWENTY FOUR INCHES WITH LETTERING AT LEAST TWO INCHES HIGH SHALL BE PLACED AT THE ENTRANCE TO PARKING AREAS AND IN OTHER LOCATIONS AS DETERMINED. THE SIGNS SHALL READ, "THIS PARKING LOT IS MADE OF POROUS PAVEMENT TO REDUCE STORM WATER RUNOFF. DO NOT USE ABRASIVES ON THE SURFACE OR RESURFACE OR SEAL."

The Stormwater Management StormFilter®

Sizing Based on the District of Columbia Stormwater Guidebook
Volume-Based Design

CONTECH® ENGINEERED SOLUTIONS

Project Name: 4131 Wheeler Road SE
Date: 11/20/2013

Input: XXX
Result: XXX

SITE CHARACTERISTIC INPUT

	Acres	Sq. Feet
Total Site Area	0.228	9,946
Total Impervious Area	0.228	9,946
Sidewalk/Rooftop Area	0.176	7,673
Parking/Roadway Area	0.052	2,273
Land Usage	Mixed/NURP Urban	

CARTRIDGE HEIGHT: 18"
Cartridge Flow Rate: 7.5 gpm | 0.017 cfs

WEIGHTED "C" FACTOR

$C_{weighted} = [(C_{impervious})(A_{impervious}) + (C_{pervious})(A_{pervious})] / \text{Total Area}$

$C_{weighted} =$ 0.90

Q_{base} & Q_{stormF} FLOW RATES

$Q_{base} = (C_{pervious})(\text{Intensity}_{2yr})(\text{Total Area})$
$Q_{base} =$ 0.42 cfs

$Q_{stormF} = (C_{weighted})(\text{Intensity}_{1hr})(\text{Total Area})$
$Q_{stormF} =$ 1.55 cfs

TIME TO DISCHARGE

$T_d =$ (CONTROL VOLUME) / (Q_o)(3600 sec/hr)
$T_d =$ 5.89 hr OK

QUALITY & QUANTITY CONTROL VOLUMES

$V_{quality} = (\text{Depth}_{1st})_{(\text{Intensity}\ 1st\ \text{Inch})}(\text{Area}_{impervious}) / 12 + (\text{Depth})_{(\text{Remaining Rain})}(\text{Area}_{pervious}) / 12$
$V_{quality} =$ 287 cf

$V_{quantity} = 1.25\,(Q_{stormF} - Q_{base})(T_d)$
$V_{quantity} =$ 424 cf ➡ Design for control volume of 424 cubic feet.

MASS LOAD FOR A VOLUME-BASED SYSTEM

Pretreatment Efficiency	30%
EMC of TSS (mg/L)	67
Average Annual Mass Load	118
Mass Removed By Pretreatment	35
Mass Load to SF	83
Mass Load Removed by SF	59
Number of Cartridge Required	2 cartridges

SYSTEM DESIGN

Vault Size	48"
Live Storage Required (cf)	424
Live Storage Provided (cf)*	29
Additional Storage Required (cf)	395
Storage Type	Stone Reservoir

*Assuming a bypass elevation 3.5' above outlet invert elevation.

Select a 48" StormFilter with (2) 18" Cartridges

ASSUMPTIONS

First Flush Depths (inches)
Sidewalk/Rooftop Area 0.20
Parking/Roadway Area 0.50

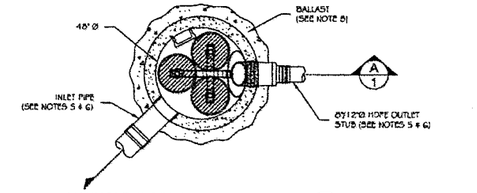
First Flush Intensities (in/hr)
Sidewalk/Rooftop Area 0.32
Parking/Roadway Area 0.53

Runoff C Values
Impervious 0.90
Pervious 0.35

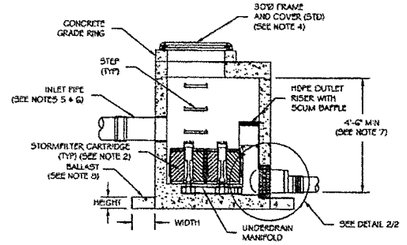
Rain Intensity (in/hr)
2-Year 5.28
15-Year 7.55

Average Annual Rainfall (in) 40

Contech Engineered Solutions, LLC • 605 Global Way Suite 113, Linthicum, MD 21090
1-866-740-3338 • www.contechES.com
UrbanOasis™ Stormwater Solutions by CONTECH



MANHOLE STORMFILTER - PLAN VIEW (1/1)



MANHOLE STORMFILTER - SECTION VIEW (A/1)

THE STORMWATER MANAGEMENT StormFilter® U.S. PATENT No. 5,322,629, No. 5,707,527, No. 6,027,639 No. 6,649,048, No. 5,624,576, AND OTHER U.S. AND FOREIGN PATENTS PENDING

CONTECH STORMWATER SOLUTIONS™ www.contechstormwater.com

PRECAST 48" MANHOLE STORMFILTER
PLAN AND SECTION VIEWS
STANDARD DETAIL

DRAWING 1 of 2

DATE: 09/26/05 | SCALE: NONE | FILE NAME: MH48-MHPC-DTL | DRAWN: MAW | CHECKED: APG

TAX LOTS 820 + 821

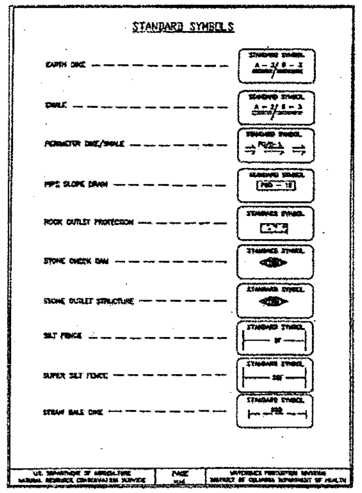
C-900

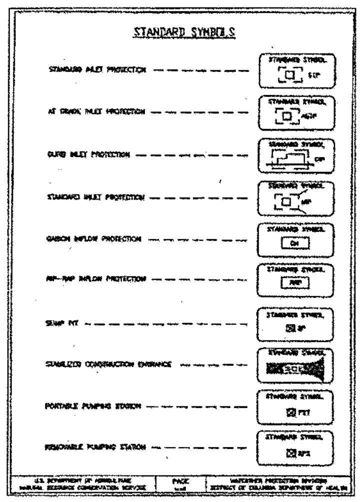
WASHINGTON BUSINESS GROUP

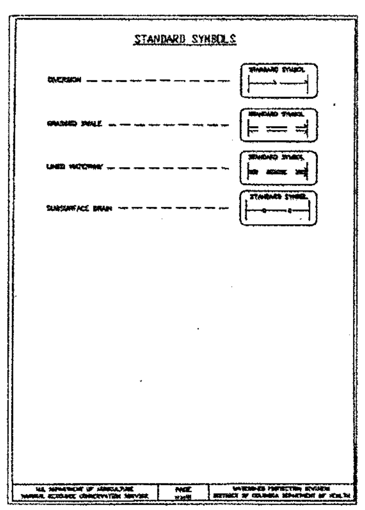
WHEELER RENAISSANCE - STORM WATER MANAGEMENT DETAILS

SCALE: NTS
DATE: 04/16/2014

C-8



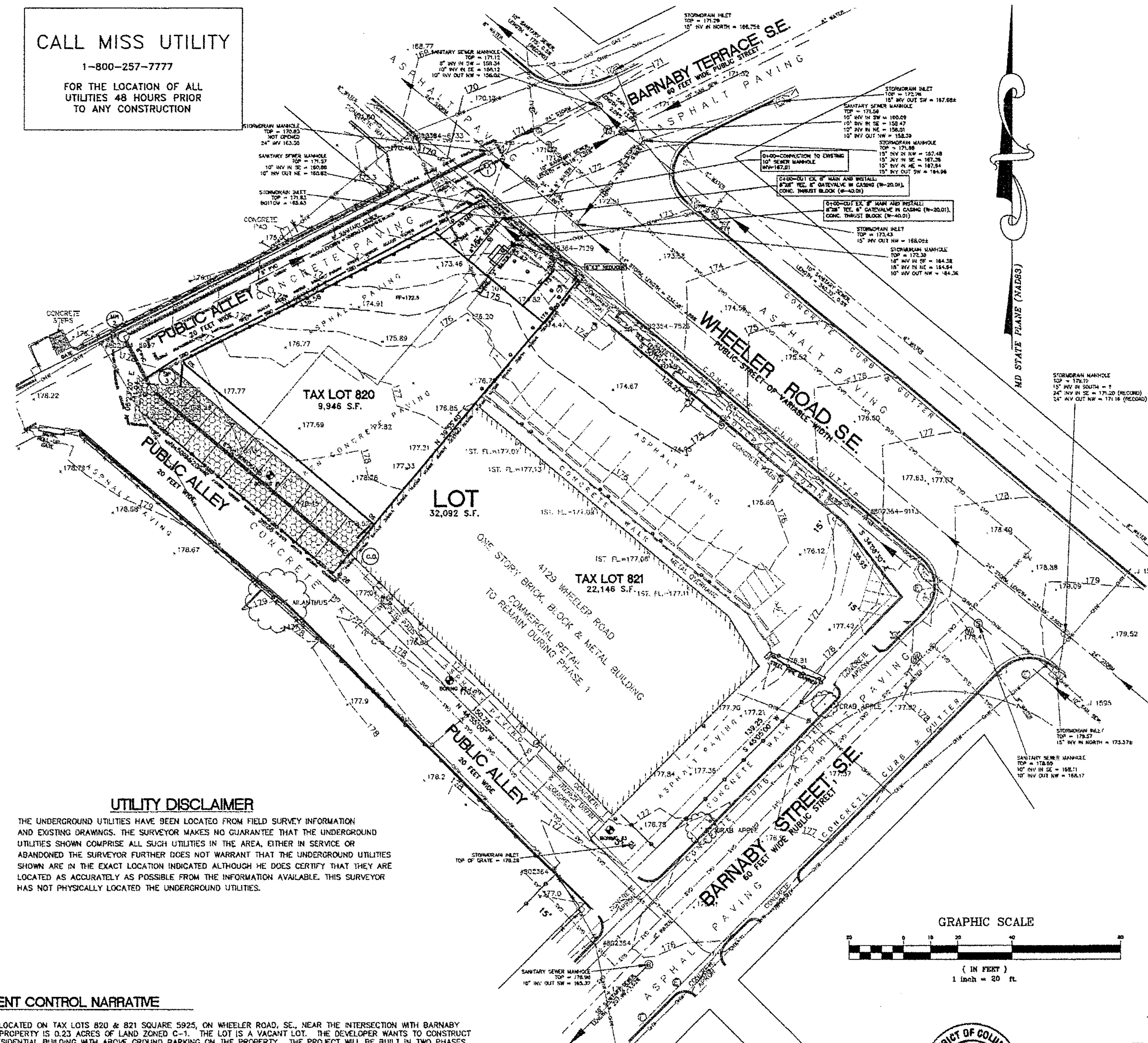




CALL MISS UTILITY

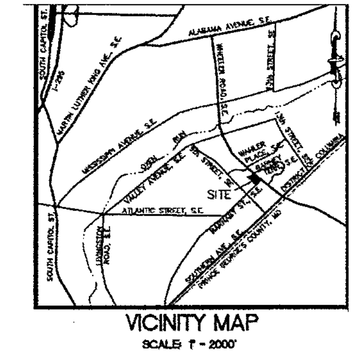
1-800-257-7777

FOR THE LOCATION OF ALL UTILITIES 48 HOURS PRIOR TO ANY CONSTRUCTION



UTILITY DISCLAIMER

THE UNDERGROUND UTILITIES HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM THE INFORMATION AVAILABLE. THIS SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.



VICINITY MAP

SCALE: 1" = 2000'

LEGEND

- METAL RAIL
- CHAIN LINK FENCE
- LP — LIGHT POLE
- UP — UTILITY POLE
- SDMH — STORM DRAIN MANHOLE
- GUY — GUY
- SMH — SEWER MANHOLE
- WMTR — WATER METER
- TRAV — TRAVERSE CONTROL POINT
- INLET — STORM DRAIN INLET
- FH — HYDRANT
- WMH — WATER MANHOLE
- WV — WATER VALVE
- 15" — TREE/SIZE
- SIGN
- PERVIOUS PAVEMENT

TAX LOTS 820 + 821

GRAPHIC SCALE

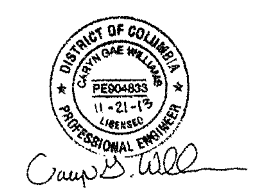
(IN FEET)
1 inch = 20 ft.

SEDIMENT CONTROL NARRATIVE

THE PROPERTY IS LOCATED ON TAX LOTS 820 & 821 SQUARE 5925, ON WHEELER ROAD, SE., NEAR THE INTERSECTION WITH BARNABY STREET, SE. THE PROPERTY IS 0.23 ACRES OF LAND ZONED C-1. THE LOT IS A VACANT LOT. THE DEVELOPER WANTS TO CONSTRUCT A CONDOMINIUM RESIDENTIAL BUILDING WITH ABOVE GROUND PARKING ON THE PROPERTY. THE PROJECT WILL BE BUILT IN TWO PHASES. THE FIRST BEING TAX LOT 820. ACCESS TO THE PARKING WILL BE FROM THE ALLEY IN THE REAR. SEDIMENT CONTROL IS PROVIDED THROUGH A STABILIZED CONSTRUCTION ENTRANCE, STRAW BALE DIKE AND INLET PROTECTION.

THE ESTIMATED TOTAL AMOUNT OF EXCAVATION LAND FILL AS SHOWN ON THESE PLANS HAS BEEN COMPUTED TO BE 771 CUBIC YARDS OF EXCAVATION AND 13 CUBIC YARDS OF FILL AND THE TOTAL AREA TO BE DISTURBED AS SHOWN ON THESE PLANS HAS BEEN DETERMINED TO BE 12,893 SQUARE FEET.

TOTAL AREA OF DEVELOPMENT - 9,946 SF.



FOR REFERENCE ONLY

LEGEND

- SBD — STRAW BALE DIKE
- STABILIZED CONSTRUCTION ENTRANCE
- ACIP — INLET PROTECTION
- LIMITS OF DISTURBANCE

C-1000

WASHINGTON BUSINESS GROUP

WHEELER RENAISSNACE - CIVIL SEDIMENT CONTROL PLAN

SCALE: NTS

DATE: 04/16/2014

C-9

PERMANENT SEEDING NOTES

SPECIFICATIONS

VEGETATION CANNOT BE EXPECTED TO PROVIDE AN EROSION CONTROL COVER AND PREVENT SOIL SLIPPAGE ON A SOIL THAT IS NOT STABLE DUE TO ITS TEXTURE, STRUCTURE, WATER MOVEMENT OR EXCESSIVELY STEEP SLOPES.

MINIMUM SOIL CONDITIONS NEEDED FOR THE ESTABLISHMENT AND MAINTENANCE OF A LONG-LIVED VEGETATIVE COVER:

A. ENOUGH FINE-GRAINED MATERIALS (OVER 30 PERCENT SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD AT LEAST A MODERATE AMOUNT OF AVAILABLE MOISTURE. WORKABLE EXCEPTION WOULD BE FLAKY OR LOOSE GRAVEL AND SCREENS LEGIBLY WHICH CAN BE PLANTED ON A SANDY SOIL.

B. SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.

C. THE SOIL SHALL BE FREE FROM ANY MATERIAL HARMFUL TO PLANT GROWTH.

D. IF THESE CONDITIONS CANNOT BE MET, SEE SPECIFICATION, TOPSOILING (SCT 01).

I. SITE PREPARATION

A. INSTALL NEEDED EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIKES, CONTOUR RIPPING, EROSION STOPS, CHANNEL LINERS, SEDIMENT BASINS, OR OTHER PRACTICES.

B. GRADE AS NEEDED AND FEASIBLE TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION, ANCHORING, AND MAINTENANCE.

II. SOIL PREPARATION

FLAT AREAS AND SLOPES UP TO 3 TO 1 GRADE SHALL BE LOOSE AND FRIABLE TO A DEPTH OF AT LEAST 3 INCHES. THE TOP LAYER OF SOIL SHALL BE LOOSENED BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING.

SLOPES STEEPER THAN 3 TO 1 SHALL HAVE THE TOP 1-3 INCHES OF SOIL LOOSE AND FRIABLE BEFORE SEEDING.

III. SOIL AMENDMENTS

LIME AND FERTILIZE ACCORDING TO SOIL TESTS. LIME AND FERTILIZER NEEDS CAN BE DETERMINED BY A SOIL TESTING LABORATORY, SUCH AS THE UNIVERSITY OF MARYLAND'S SOIL TESTING LABORATORY.

IN LIEU OF SOIL TEST RESULTS, APPLY 3 TONS DOLOMITIC LIMESTONE PER ACRE AND ONE OF THE FOLLOWING RATES OF FERTILIZER: 1,000 LBS. 10-10-10 OR EQUIVALENT PER ACRE. FOR A LONGER LASTING FERTILIZER TREATMENT APPLY 600 LBS. 10-10-10 OR EQUIVALENT PER ACRE AND DISK IN AND AT TIME OF SEEDING APPLY AN ADDITIONAL 400 LBS. OF A UREAFORM FERTILIZER OF A GRADE OF AT LEAST 30-0-0 PER ACRE. APPLY THE LIME AND FERTILIZER BEFORE SEEDING AND HARROW OR DISK UNIFORMLY INTO THE SOIL TO A MINIMUM DEPTH OF 2 INCHES ON SLOPES FLATTER THAN 3:1. ON SLOPES STEEPER THAN 3:1 GRADE, THE LIME AND FERTILIZER SHALL BE WORKED INTO THE BEST WAY POSSIBLE. ON SLOPING LAND, THE FINAL HARROWING OR DISCING OPERATION SHOULD BE ON THE CONTOUR WHENEVER FEASIBLE. NO ATTEMPT SHOULD BE MADE TO DRAG ANY DISKED AREA TO MAKE THE SOIL SURFACE SMOOTH AFTER SEEDING.

NOTE: THE SLOW RELEASE UREAFORM FERTILIZER WILL SUPPLY NITROGEN OVER A LONGER PERIOD OF TIME.

A. SELECT A MIXTURE FROM TABLE 50-1.

B. APPLY SEED UNIFORMLY WITH A CYCLONE SEEDER, DRILL, CULTIPACKER SEEDER OR HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER) ON A FIRM, MOIST SEEDBED. MAXIMUM SEEDING DEPTH SHOULD BE 1/4 INCH ON CLAYEY SOILS AND 1/2 INCH ON SANDY SOILS. WHEN USING OTHER THAN HYDROSEEDER METHOD OF APPLICATION, INCREASE RATES BY 10% IF HYDROSEEDING IS USED AND THE SEED AND FERTILIZER IS MIXED, THEY WILL BE MIXED ON SITE AND THE SEEDING SHALL BE IMMEDIATE WITHOUT INTERRUPTION.

V. MULCHING

A. MATERIALS AND AMOUNTS

1. MULCH MATTINGS – SUCH AS JUTE OR EXCELSIOR BLANKET SHALL BE STAPLED TO THE SURFACE IN WATERWAYS AND ON STEEP SLOPES. LIGHTER MATERIALS OF PAPER, PLASTIC AND COTTON MULCH MATTINGS MAY BE USED WHERE EROSION HAZARD IS NOT SEVERE. IF THE AREA IS TO BE MOWED, DO NOT USE METAL STAPLES.

2. STRAW – STRAW SHALL BE UNROTTED SMALL GRAIN APPLIED AT THE RATE OF 1 1/2 TO 2 TONS PER ACRE, OR 70 TO 90 (TWO BALES) POUNDS PER 1,000 SQ. FT. MULCH MATERIALS SHALL BE RELATIVELY FREE OF PROHIBITED NOXIOUS WEEDS SUCH AS THISTLES, JOHNSONGRASS AND QUACKGRASS

SPREAD UNIFORMLY BY HAND OR MECHANICALLY. FOR UNIFORM DISTRIBUTION OF HAND SPREAD MULCH, DIVIDE AREA INTO APPROXIMATELY 1,000 SQ. FT. SECTION AND PLACE 70-90 LBS. OF MULCH IN EACH SECTION.

3. WOOD CHIPS – AT THE RATE OF APPROXIMATELY 6 TONS PER ACRE OR 275 LBS. PER 1,000 SQ. FT. MAY BE USED WHEN AVAILABLE AND WHEN FEASIBLE. THESE ARE PARTICULARLY WELL-SUITED FOR UTILITY AND ROAD RIGHTS-OF-WAY. IF WOOD CHIPS ARE USED, INCREASE THE APPLICATION RATE OF NITROGEN FERTILIZER BY 20 LBS. (1000 LBS. 10-10-10 OR 44 LBS. 30-0-0).

4. WOOD CELLULOSE FIBER – MULCH AT THE RATE OF 1,500 LBS. PER ACRE OR 35 LBS. PER 1,000 SQ. FT. MAY BE APPLIED BY HYDROSEEDING.

B. MULCH ANCHORING SHALL BE ACCOMPLISHED IMMEDIATELY AFTER MULCH PLACEMENT TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON SIZE OF AREA, EROSION HAZARD, AND COST: ON SLOPING LAND, PRACTICE NO. 1 SHOULD BE DONE ON THE CONTOUR WHENEVER POSSIBLE, EXCEPT "TRACKING" SHOULD BE DONE UP AND DOWN THE SLOPE WITH 1 1/2 INCH CLEAT MARKS RUNNING ACROSS THE SLOPE.

1. MULCH ANCHORING TOOL AND TRACKING – A MULCH ANCHORING TOOL IS A TRACTOR DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SURFACE 2 INCHES OF SOIL. THIS PRACTICE AFFORDS MAXIMUM EROSION CONTROL BUT IS LIMITED TO FLATTER SLOPES WHERE EQUIPMENT CAN OPERATE SAFELY. "TRACKING" IS PRIMARILY USED ON 3:1 OR STEEPER CUT AND FILL SLOPES TO CUT THE MULCH INTO THE SOIL BY 1 1/2" "BLACK CLEATS" OF A BULLDOZER MAKING GROVES ACROSS THE SLOPE.

2. MULCH NETTINGS – STAPLE LIGHTWEIGHT BIODEGRADABLE PAPER, PLASTIC OR COTTON NETTINGS OVER THE MULCH ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4 FEET WIDE AND UP TO 300 FEET LONG.

3. LIQUID MULCH BINDERS – APPLICATIONS OF LIQUID BINDERS SHOULD BE HEAVIER AT EDGES, WHERE WIND CATCHES MULCH, IN VALLEYS, AND AT CREESTS OF BANKS. REMAINDER OF AREA SHOULD BE UNIFORM IN APPEARANCE. CAUTION SHOULD BE USED WITH ASPHALT IN RESIDENTIAL AND SIMILAR AREAS.

A. OUTBACK ASPHALT – RAPID CURING (RC-70, RC-250, AND MC-800) OR MEDIUM CURING (MC-250 OR MC-800). APPLY 5 GALLONS PER 1,000 SQUARE FEET OR 348 GALLONS PER ACRE.

B. EMULSIFIED ASPHALT – (SS-1, CSS-1, CMS-2 MS-2, RS-1, RS-2, CRS-1, AND CRS-2). APPLY 5 GALLONS PER 1,000 SQUARE FEET OR 200 GALLONS PER ACRE ON FLAT AREAS AND ON SLOPES LESS THAN 8 FEET HIGH. ON SLOPES 8 FEET OR MORE HIGH, USE 8 GALLONS PER 1000 SQUARE FEET OR 348 GALLONS PER ACRE.

ALL ASPHALT DESIGNATIONS ARE FROM THE ASPHALT INSTITUTE SPECIFICATIONS.

C. SYNTHETIC BINDERS – SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (ACRY-TAC), DCA-70, PETROSET OR TERRA TAC MAY BE USED AT RATES RECOMMENDED BY THE MANUFACTURER TO ANCHOR MULCH MATERIAL.

4. WOOD CELLULOSE FIBER – WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. THE FIBER BINDER SHALL BE APPLIED AT A WET DRY WEIGHT OF 750 POUNDS/ACRE. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER AND THE MIXTURE SHALL CONTAIN A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS.

5. PEG AND TWINE – DRIVE 8 TO 10 INCH WOODEN PEGS TO WITHIN 2 TO 3 INCHES OF THE SOIL SURFACE EVERY 4 FEET IN ALL DIRECTIONS. STAKES MAY BE DRIVEN BEFORE OR AFTER APPLYING MULCH. SECURE MULCH TO SOIL SURFACE BY STRETCHING TWINE BETWEEN PEGS IN A CRISS-CROSS WITHIN A SQUARE PATTERN. SECURE TWINE AROUND EACH PEG WITH TWO OR MORE COMPLETE TURNS.

NOTE: ALL NAMES GIVEN ABOVE ARE REGISTERED TRADE NAMES. THIS DOES NOT CONSTITUTE A RECOMMENDATION OF THESE PRODUCTS TO THE EXCLUSION OF OTHER PRODUCTS.

VI. IRRIGATION

IF SOIL MOISTURE IS DEFICIENT, SUPPLY NEW SEEDINGS WITH ADEQUATE WATER FOR PLANT GROWTH UNTIL THEY ARE FIRMLY ESTABLISHED, IF FEASIBLE. THIS IS ESPECIALLY TRUE WHEN SEEDINGS ARE MADE LATE IN THE PLANTING SEASON, IN ABNORMALLY DRY OR HOT SEASONS, OR ON ADVERSE SITES.

VII. MAINTENANCE

MAINTENANCE IS A VITAL FACTOR IN MAINTAINING AN ADEQUATE VEGETATIVE EROSION CONTROL COVER.

A. IRRIGATION – IF SOIL MOISTURE BECOMES DEFICIENT, IRRIGATE TO PREVENT LOSS OF STAND OF PROTECTIVE VEGETATION, IF FEASIBLE.

B. REPAIRS – INSPECT ALL SEEDED AREAS FOR FAILURES AND MAKE NECESSARY REPAIRS, REPLACEMENTS, AND RESEEDINGS WITHIN THE PLANTING SEASON, IF POSSIBLE.

1. IF STAND IS INADEQUATE FOR EROSION CONTROL, OVERSEED AND FERTILIZE USING HALF OF THE RATES ORIGINALLY APPLIED.

2. IF STAND IS OVER 60% DAMAGED, REESTABLISH FOLLOWING ORIGINAL LIME, FERTILIZER, SEEDBED PREPARATION AND SEEDING RECOMMENDATIONS.

TEMPORARY SEEDING NOTES

SPECIFICATIONS

SITE PREPARATION

A. PRIOR TO SEEDING, INSTALL NEEDED EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, BERMS, DIKES, GRASSED WATERWAYS, AND SEDIMENT BASINS.

B. FINAL GRADING AND SHAPING HAS USUALLY NOT BEEN COMPLETED FOR TEMPORARY SEEDINGS.

SOIL AMENDMENTS

FOR TEMPORARY SEEDINGS, FERTILIZER SHALL BE APPLIED AT THE RATE OF 600 lbs/ac. OR 15 lbs/1,000 sq. ft., USING 10-10-10 OR EQUIVALENT. SOILS WHICH ARE HIGHLY ACID SHOULD BE LIMED.

SEEDBED PREPARATION

WHEN THE AREA TO BE SEEDED HAS BEEN RECENTLY LOOSENED TO THE EXTENT THAT AN ADEQUATE SEEDBED EXISTS, NO ADDITIONAL TREATMENT IS REQUIRED.

HOWEVER, WHEN THE AREA TO BE SEEDED IS PACKED, CRUSTED, AND HARD, THE TOP LAYER OF SOIL SHALL BE LOOSENED BY DISCING, RAKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING.

SEEDING

A. SELECT A MIXTURE FROM TABLE 50-1.

B. APPLY SEED UNIFORMLY WITH A CYCLONE SEEDER, DRILL, CULTIPACKER SEEDER OR HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER).

MULCHING

WHEN SEEDINGS ARE MADE ON CRITICAL SITES OR ALMOST ANY CONDITIONS, MULCH MATERIAL WILL BE APPLIED IMMEDIATELY AFTER SEEDING. SEEDINGS MADE DURING OPTIMUM SEEDING DATES, AND WITH FAVORABLE SOILS ON VERY FLAT AREAS MAY NOT NEED TO BE MULCHED. MULCH MATERIALS ARE LISTED IN ORDER OF THEIR EFFECTIVENESS.

A. MATERIALS AND AMOUNTS

1. MULCH MATTINGS – SUCH AS JUTE OR EXCELSIOR BLANKET SHALL BE STAPLED TO THE SURFACE IN WATERWAYS AND ON STEEP SLOPES. LIGHTER MATERIALS OF PAPER, PLASTIC AND COTTON MULCH MATTINGS MAY BE USED WHERE EROSION HAZARD IS NOT SEVERE. IF THE AREA IS TO BE MOWED, DO NOT USE METAL STAPLES.

2. STRAW – MATERIAL SHALL BE UNROTTED SMALL GRAIN STRAW APPLIED AT THE RATE OF 1 1/2 TO 2 TONS PER ACRE, OR 70 TO 90 (TWO BALES) POUNDS PER 1,000 SQ. FT. MULCH MATERIALS SHALL BE RELATIVELY FREE OF PROHIBITED NOXIOUS WEEDS SUCH AS: THISTLES, JOHNSONGRASS AND QUACKGRASS

SPREAD UNIFORMLY BY HAND OR MECHANICALLY. FOR UNIFORM DISTRIBUTION OF HAND SPREAD MULCH, DIVIDE AREA INTO APPROXIMATELY 1,000 SQ. FT. SECTION AND PLACE 70-90 LBS. OF MULCH IN EACH SECTION.

3. WOOD CHIPS – AT THE RATE OF APPROXIMATELY 6 TONS PER ACRE OF 275 LBS. PER 1,000 SQ. FT. MAY BE USED WHEN AVAILABLE AND WHEN FEASIBLE TO USE.

4. WOOD CELLULOSE FIBER – MULCH AT THE RATE OF 1,500 POUNDS PER ACRE OR 35 POUNDS PER 1,000 SQ. FT. MAY BE APPLIED BY HYDROSEEDING.

B. MULCH ANCHORING SHALL BE ACCOMPLISHED IMMEDIATELY AFTER MULCH PLACEMENT TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON SIZE OF AREA, EROSION HAZARD, AND COST: ON SLOPING LAND, PRACTICE NO. 1 SHOULD BE DONE ON THE CONTOUR WHENEVER POSSIBLE, EXCEPT "TRACKING" SHOULD BE DONE UP AND DOWN THE SLOPE WITH 1 1/2 INCH CLEAT MARKS RUNNING ACROSS THE SLOPE.

1. MULCH ANCHORING TOOL AND TRACKING – A MULCH ANCHORING TOOL IS A TRACTOR DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SURFACE 2 INCHES OF SOIL. THIS PRACTICE AFFORDS MAXIMUM EROSION CONTROL, BUT IS LIMITED TO FLATTER SLOPES WHERE EQUIPMENT CAN OPERATE SAFELY. "TRACKING" IS PRIMARILY USED ON STEEPER THAN 3:1 CUT AND FILL SLOPES TO CUT THE MULCH INTO THE SOIL WITH CLEATED BULLDOZER TRACKS.

2. MULCH NETTINGS – STAPLE LIGHTWEIGHT BIODEGRADABLE PAPER, PLASTIC OR COTTON NETTINGS OVER THE MULCH ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4' WIDE AND UP TO 300' LONG.

3. LIQUID MULCH BINDERS – APPLICATION OF LIQUID BINDERS SHOULD BE HEAVIER AT EDGES WHERE WIND CATCHES MULCH, IN VALLEYS, AND AT CREESTS OF BANKS. REMAINDER OF AREA SHOULD BE UNIFORM IN APPEARANCE. CAUTION SHOULD BE USED WITH ASPHALT IN RESIDENTIAL AND SIMILAR AREAS.

a. OUTBACK ASPHALT – RAPID CURING (RC-70, RC-250, AND RC-800) OR MEDIUM CURING (MC-250 OR MC-800). APPLY 5 GAL PER 1,000 SQ. FT. OR 348 GAL PER AC.

b. EMULSIFIED ASPHALT – (SS-1, CSS-1, CMS-2, MS-2, RS-1, RS-2, CRS-1, AND CRS-2). APPLY 5 GAL PER 1,000 SQ. FT. OR 218 GAL PER AC. ON FLAT AREAS AND ON SLOPES LESS THAN 8' HIGH. ON SLOPES 8' OR MORE HIGH, USE 8 GAL PER 1,000 SQ. FT. OR 348 GAL PER AC.

ALL ASPHALT DESIGNATIONS ARE FROM THE ASPHALT INSTITUTE SPECIFICATIONS.

c. SYNTHETIC BINDERS – SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (ACRY-TAC), DCA-70, PETROSET OR TERRA TACK MAY BE USED AT RATES RECOMMENDED BY THE MANUFACTURER TO ANCHOR MULCH MATERIAL.

4. WOOD CELLULOSE FIBER – WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. THE FIBER BINDER SHALL BE APPLIED AT A NET DRY WEIGHT OF 750 LBS/AC. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER AND THE MIXTURE SHALL CONTAIN A MAXIMUM OF 50 LBS. OF WOOD FIBER PER 100 GAL.

5. PEG AND TWINE – DRIVE 8 TO 10 INCH WOODEN PEGS TO WITHIN 2 TO 3 INCHES OF THE SOIL SURFACE EVERY 4' IN ALL DIRECTIONS. STAKES MAY BE DRIVEN BEFORE OR AFTER APPLYING MULCH. SECURE MULCH TO SOIL SURFACE BY STRETCHING TWINE BETWEEN PEGS IN A CRISS-CROSS WITHIN A SQUARE PATTERN. SECURE TWINE AROUND EACH PEG WITH TWO OR MORE ROUND TURNS.

NOTE: ALL NAMES GIVEN ABOVE ARE REGISTERED TRADE NAMES. THIS DOES NOT CONSTITUTE A RECOMMENDATION OF THESE PRODUCTS TO THE EXCLUSION OF OTHER PRODUCTS.

TABLE 50-1

TEMPORARY SEEDINGS BY RATES, DEPTHS AND DATES

	SEEDING RATES		PLANTING DEPTH 3/	SEEDING DATES 6/								
				COASTAL PLAIN			PIEDMONT			MOUNTAINS		
SPECIES 3/	PER ACRE	LBS/1000 SQ. FT.	(INCHES)	2/- 4/30	5/1- 8/14	8/15- 11/30	2/- 4/30	5/1- 8/14	8/15- 11/30	2/- 4/30	5/1- 8/14	8/15- 11/30
Choose one:				5/			5/					
Spring Oats	2 1/2 bu.	2.6	1-2	x	–	By 10/15	x	–	By 10/15	x	–	By 10/15
Oats	3 bu.	2.2	2-3	x	–	–	x	–	–	x	–	–
Rye	2 1/2 bu.	1.2	1-2	x	–	x	x	–	x	x	–	x
Hulan or perennial ryegrass 1/	40 lbs.	.92	1/4-1/2	5/ x	–	By 11/1	5/ x	–	By 11/1	x	–	By 8/15
Millet	40 lbs.	.92	1/2	–	x	–	–	x	–	–	x	–
Weeping Love, or Lehmann's lovegrass	3 lbs.	.07	1/4-1/2	–	x	–	–	x	–	–	x	–
Sudangrass 4/	40 lbs.	.92	1-2	–	x	–	–	x	–	–	x	–

1/ Use only on areas where seed stalks and volunteer growth are acceptable.

2/ Applicable on slopes 3:1 or less.

3/ Use varieties currently recommended for Maryland. Use certified seed when available.

4/ Use common sudangrass varieties only. Do not use hybrids.

5/ Twenty pounds per acre of annual lespedeza may be added to 1/2 the seeding rate of any species used for seedings.

6/ Between fall and spring seeding dates, use mulching only or seeding practices.

x Applicable during entire period

– Not applicable in period

DISTRICT OF COLUMBIA
CARLTON GAE WILLIAMS
PE904833
11-21-13
LICENSED
PROFESSIONAL ENGINEER

GENERAL DEPARTMENT OF HEALTH NOTES

1. ALL SEDIMENT AND EROSION CONTROL METHODS SHALL BE INSTALLED BEFORE THE START OF ANY EXCAVATION AND/OR CONSTRUCTION AS PER STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR THE DISTRICT OF COLUMBIA. IF AN ON-SITE INSPECTION REVEALS FURTHER EROSION CONTROL MEASURES ARE NECESSARY THE SAME SHALL BE PROVIDED.
2. ALL DEBRIS TO BE REMOVED FROM SITE.
3. ALLEY AND/OR STREETS SHALL BE SWEPT CLEAN AT ALL TIMES DURING EXCAVATION AND CONSTRUCTION.
4. ANY STOCKPILING, REGARDLESS OF LOCATION ON THE SITE, SHALL BE STABILIZED WITHIN 20 DAYS AFTER ITS ESTABLISHMENT AND FOR THE DURATION OF THE PROJECT.
5. NO DISTURBED AREA WILL BE DENUDED FOR MORE THAN 7 CALENDAR DAYS. INSTALL THE NECESSARY TEMPORARY OR PERMANENT VEGETATIVE STABILIZATION MEASURES TO ACHIEVE ADEQUATE EROSION AND SEDIMENT CONTROL.
6. ALL CONSTRUCTION TO BE INSPECTED DAILY BY THE CONTRACTOR, AND ANY DAMAGED SILTATION OR EROSION CONTROL DEVICES OR MEASURES WILL BE REPAIRED AT THE CLOSE OF THE DAY.
7. ALL SILT FENCE TO BE MAINTAINED IN WORKING CONDITION.
8. STABILIZED CONSTRUCTION ENTRANCES TO BE PERIODICALLY SUPPLEMENTED WITH ADDITIONAL STONE AS NECESSARY.
9. CONTROLS WILL BE REMOVED AFTER THEIR CONTRIBUTING AREAS HAVE BEEN PERMANENTLY STABILIZED.

DUST CONTROL MEASURES

1. THE CONTRACTOR SHALL CONDUCT OPERATIONS AND MAINTAIN THE PROJECT SITE SO AS TO MINIMIZE THE CREATION AND DISPERSION OF DUST. DUST CONTROL SHALL BE USED THROUGHOUT THE WORK AT THE SITE.
2. THE CONTRACTOR MUST PROVIDE CLEAN WATER, FREE FROM SALT, OIL AND OTHER DELETERIOUS MATERIAL TO BE USED FOR ON-SITE DUST CONTROL.
3. THE CONTRACTOR SHALL SUPPLY WATER SPRAYING EQUIPMENT CAPABLE OF ACCESSING ALL WORK AREAS.
4. THE CONTRACTOR SHALL IMPLEMENT STRICT DUST CONTROL MEASURES DURING ACTIVE CONSTRUCTION PERIODS ON-SITE. THESE CONTROL MEASURES WILL GENERALLY CONSIST OF WATER APPLICATIONS THAT SHALL BE APPLIED A MINIMUM OF ONCE PER DAY DURING DRY WEATHER OR MORE OFTEN AS REQUIRED TO PREVENT DUST EMISSIONS.
5. FOR WATER APPLICATION TO UNDISTURBED SOIL SURFACES, THE CONTRACTOR SHALL:
   A. APPLY WATER WITH EQUIPMENT CONSISTING OF TANK, SPRAY BAR, PUMP WITH DISCHARGE PRESSURE GAUGE
   B. ARRANGE SPRAY BAR HEIGHT, NOZZLE SPACING AND SPRAY PATTERN TO PROVIDE COMPLETE COVERAGE OF GROUND WITH WATER.
   C. DISPERSE WATER THROUGH NOZZLES ON SPRAY BAR AT 20 PSI (137.8 kPa), MINIMUM. KEEP AREAS DAMP WITHOUT CREATING NUISANCE CONDITIONS SUCH AS PONDING.
6. FOR WATER APPLICATION TO SOIL SURFACES DURING DEMOLITION AND/OR EXCAVATION, THE CONTRACTOR SHALL:
   A. APPLY WATER WITH EQUIPMENT CONSISTING OF A TANK, PUMP WITH DISCHARGE GAUGE, HOSES AND MIST NOZZLES.
   B. LOCATE TANK AND SPRAYING EQUIPMENT SO THAT THE ENTIRE EXCAVATION AREA CAN BE MISTED WITHOUT INTERFERING WITH DEMOLITION AND/OR EXCAVATION EQUIPMENT OR OPERATIONS. KEEP AREAS DAMP WITHOUT CREATING NUISANCE CONDITIONS SUCH AS PONDING.
   C. APPLY WATER SPRAY IN A MANNER TO PREVENT MOVEMENT OF SPRAY BEYOND THE SITE BOUNDARIES.

CONSTRUCTION SEQUENCE

1. PRIOR TO CLEARING OF TREES, INSTALLING SEDIMENT CONTROL MEASURES, OR GRADING, A PRECONSTRUCTION MEETING MUST BE CONDUCTED ON-SITE WITH THE SEDIMENT CONTROL INSPECTOR (72 HOURS NOTICE).
2. INSTALL ALL SEDIMENT CONTROL DEVICES AS SHOWN ON THIS PLAN.
3. PERFORM ANY NECESSARY DEMOLITION, CLEARING, INITIAL GRADING WITHIN THE LIMIT OF DISTURBANCE, AND TOP SOIL STRIPPING AND STOCK PILE.
4. INSTALL UTILITIES. INSTALL WATER AND SEWER LATERALS. INSTALL STORM DRAIN.
5. CONSTRUCT PROPOSED BUILDING.
6. INSTALL CURB AND GUTTER.
7. COMPLETE SITE GRADING.
8. INSTALL STORM WATER MANAGEMENT FACILITY. INSTALL STORMFILTER CARTRIDGES AND CONNECT STORM DRAIN TO STONE STORAGE UNDERDRAIN. INSTALL PERVIOUS PAVING. STABILIZE ALL DISTURBED AREAS.
9. ONCE ALL WORK HAS BEEN COMPLETED AND DISTURBED AREAS ARE STABILIZED, SEDIMENT CONTROL DEVICES MAY BE REMOVED WITH THE APPROVAL OF A DCRA EROSION CONTROL INSPECTOR.

NOTE: THE CONTRACTOR SHALL CALL THE INSPECTION BRANCH, WATERSHED PROTECTION DIVISION, DISTRICT DEPARTMENT OF THE ENVIRONMENT AT (202) 535-2240 FOR A PRE-CONSTRUCTION MEETING 72 HOURS PRIOR TO THE START OF ANY DISTURBANCE OF LAND.

TAX LOTS 820 + 821

FOR REFERENCE ONLY

C-1100

WASHINGTON BUSINESS GROUP

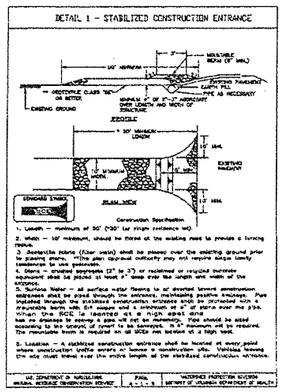
WHEELER RENAISSANCE - CIVIL SEDIMENT CONTROL NOTES

SCALE: NTS

DATE: 04/16/2014

C-10

DETAIL 1 - STABILIZED CONSTRUCTION ENTRANCE



1. Length — minimum of 50' (30' for single residence lot)
2. Width — 10' minimum, should be flared at the existing road to provide a turning radius.
3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. Where plan approval authority may not require single family residences to use geotextile.
4. Stone — crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.
5. Surface Water — all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mountable berm with 5:1 slopes and a minimum 6" compacted depth over the pipe. Pipe sizes shall be adequate to handle the flow.
6. Maintenance — the entrance shall be maintained in a condition which will prevent tracking or flowing of sediment onto public rights-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or cleanout of any measures used to trap sediment. All sediment spilled, dropped, washed or tracked onto public rights-of-way must be removed immediately. When washing is required, it shall be done on an area stabilized with crushed stone which drains into an approved sediment trap or sediment basin. All pressure washing must be done in a manner which prevents discharge of sediment-laden runoff to adjacent properties, streams, wetlands, or other critical areas.
7. Location — a stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Additional fencing may be required to direct all traffic to the entrance.

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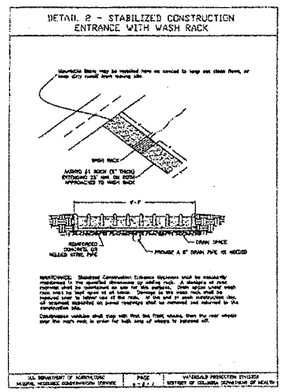
NATURAL RESOURCE CONSERVATION SERVICE	1 - 5 - 1	DISTRICT OF COLUMBIA DEPARTMENT OF HEALTH

DETAIL 2 - STABILIZED CONSTRUCTION ENTRANCE WITH WASH RACK



MAINTENANCE: Stabilized Construction Entrance Maintain and be constantly inspected for conditions that require discharge to surface runoff. All sediment spilled, dropped, washed or tracked onto public roadways must be removed immediately. When washing is required, it shall be done on an area stabilized with crushed stone which drains into an approved sediment trap or sediment basin. All washwater must be contained on site. Any washwater shall be filtered before entering any storm drain, stream or other watercourse.

Maintenance includes shall stop with that the final stone, then the next phase may be much need in order for bulk long of stages to purpose off.

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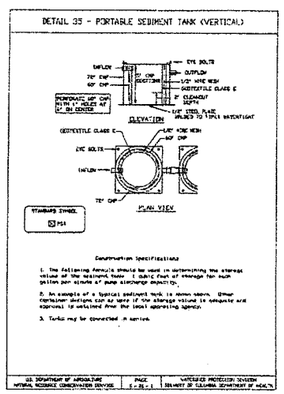
DETAIL 3S - PORTABLE SEDIMENT TANK (VERTICAL)



Construction Specifications

1. The following formula should be used in determining the storage volume of the sediment trap: 1 cubic foot of storage for each gallon per minute minute of pump discharge capacity.
2. An example of a typical sediment tank is shown above. Other configuration designs can be used if the storage volume is adequate and approval is obtained from the local approving agency.
3. Tanks may be connected in series.

U.S. DEPARTMENT OF AGRICULTURE	PAGE	WATERSHED PROTECTION DIVISION
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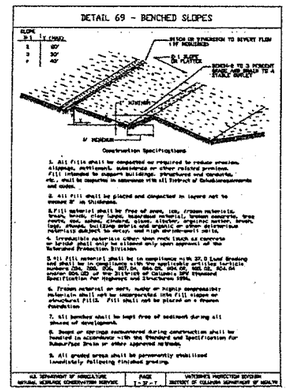
DETAIL 6S - BENCHED SLOPES



Construction Specifications

A. All fills shall be compacted as required to reduce erosion, slippage, settlement, subsidence or other related problems. Fills intended to support buildings, structures and conduits, etc., shall be compacted in accordance with all District of Columbia requirements and codes.

B. All fill shall be placed and compacted in layers not to exceed 8" in thickness.

C. Fill materials shall be free of sod, rubbish, cans, metals, tires, junk, or other objectionable materials; frozen materials, rocks, logs, stumps, building rubble and other debris. Organic content, peats, mucks, silts, loams, clays, or any plastic or other deleterious materials subject to swelling and high shrinkage shall not be used.

D. Impervious materials (other than rock) such as compacted clay shall be used to core dams only upon approval of the Watershed Protection Division.

E. All fill material shall be in compliance with ASTM Soil Standard D698, 90% - 95% of max. density, specifications will state Controls numbers 104, 105, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000

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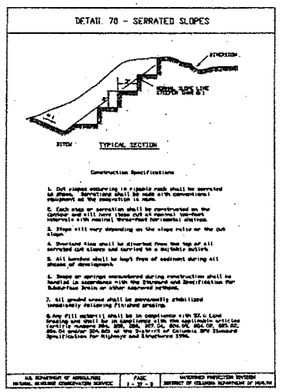
DETAIL 7S - SERRATED SLOPES



Construction Specifications

1. Cut slopes designed as a gentle rock shall be serrated as shown. Serrations shall be made with conventional equipment as the construction is made.
2. Each step or serration shall be constructed as the contour and will have a face cut as nearly vertical as practicable with material transported horizontally.
3. Steps will vary depending on the slope ratio or the cut slope.
4. Downhill flow shall be eliminated from the top of all serrated cut slopes and carried to a suitable outlet.
5. All benches shall be kept free of sediment during all phases of development.
6. Steps or serrations encountered during construction shall be located in accordance with the Standard and Specification for Subsurface Drain or other approved methods.
7. All graded areas shall be permanently stabilized immediately following finished grading.
8. Any fill material shall be in compliance with the Land Disposal Regulations, 21 DCMR, Chapter 22, Section 2202 and Controlled Materials Regulations, 21 DCMR, Section 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 2681, 2682, 2683, 2684, 2685, 2686, 2687, 2688, 2689, 2690, 2691, 2692, 2693, 2694, 2695, 2696, 2697, 2698, 2699, 2700, 2701, 2702, 2703, 2704, 2705, 2706, 2707, 2708, 2709, 2710, 2711, 2712, 2713, 2714, 2715, 2716, 2717, 2718, 2719, 2720, 2721, 2722, 2723, 2724, 2725, 2726, 2727, 2728, 2729, 2730, 2731, 2732, 2733, 2734, 2735, 2736, 2737, 2738, 2739, 2740, 2741, 2742, 2743, 2744, 2745, 2746, 2747, 2748, 2749, 2750, 2751, 2752, 2753, 2754, 2755, 2756, 2757, 2758, 2759, 2760, 2761, 2762, 2763, 2764, 2765, 2766, 2767, 2768, 2769, 2770, 2771, 2772, 2773, 2774, 2775, 2776, 2777, 2778, 2779, 2780, 2781, 2782, 2783, 2784, 2785, 2786, 2787, 2788, 2789, 2790, 2791, 2792, 2793, 2794, 2795, 2796, 2797, 2798, 2799, 2800, 2801, 2802, 2803, 2804, 2805, 2806, 2807, 2808, 2809, 2810, 2811, 2812, 2813, 2814, 2815, 2816, 2817, 2818, 2819, 2820, 2821, 2822, 2823, 2824, 2825, 2826, 2827, 2828, 2829, 2830, 2831, 2832, 2833, 2834, 2835, 2836, 2837, 2838, 2839, 2840, 2841, 2842, 2843, 2844, 2845, 2846, 2847, 2848, 2849, 2850, 2851, 2852, 2853, 2854, 2855, 2856, 2857, 2858, 2859, 2860, 2861, 2862, 2863, 2864, 2865, 2866, 2867, 2868, 2869, 2870, 2871, 2872, 2873, 2874, 2875, 2876, 2877, 2878, 2879, 2880, 2881, 2882, 2883, 2884, 2885, 2886, 2887, 2888, 2889, 2890, 2891, 2892, 2893, 2894, 2895, 2896, 2897, 2898, 2899, 2900, 2901, 2902, 2903, 2904, 2905, 2906, 2907, 2908, 2909, 2910, 2911, 2912, 2913, 2914, 2915, 2916, 2917, 2918, 2919, 2920, 2921, 2922, 2923, 2924, 2925, 2926, 2927, 2928, 2929, 2930, 2931, 2932, 2933, 2934, 2935, 2936, 2937, 2938, 2939, 2940, 2941, 2942, 2943, 2944, 2945, 2946, 2947, 2948, 2949, 2950, 2951, 2952, 2953, 2954, 2955, 2956, 2957, 2958, 2959, 2960, 2961, 2962, 2963, 2964, 2965, 2966, 2967, 2968, 2969, 2970, 2971, 2972, 2973, 2974, 2975, 2976, 2977, 2978, 2979, 2980, 2981, 2982, 2983, 2984, 2985, 2986, 2987, 2988, 2989, 2990, 2991, 2992, 2993, 2994, 2995, 2996, 2997, 2998, 2999, 3000

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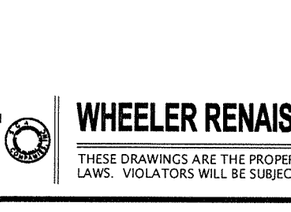
DETAIL 3 - STRAW BALE DIKE



STRAW BALE DIKE

Construction Specifications

1. Bales shall be placed at the toe of a slope, on the contour, and in a row with the ends of each bale tightly abutting the adjacent bales.
2. Each bale shall be embedded in the soil a minimum of 4" and placed so the bindings are horizontal.
3. Bales shall be securely anchored in place by either two 2" X 2" wooden stakes or rebars driven through the bale 18" to 18" into the ground. The first stake in each bale shall be driven toward the previously laid bale at an angle to force the bales together. Stakes shall be driven flush with the top of the bale.
4. Straw bale dikes shall be inspected frequently and after each rain event and maintenance performed as necessary.
5. All bales shall be removed when the silt has been stabilized. The trench where the bales were located shall be graded flush and smoothed.

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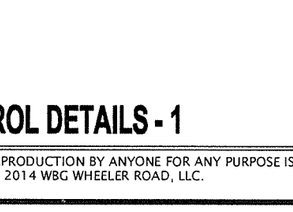
DETAIL 4 - SILT FENCE



Construction Specifications

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 1.5"x1.5" or 2"x2" square sawn material. Steel posts shall be standard quality hot-rolled steel, 1.25 pounds per foot or greater. The spacing between fence posts shall be 8' maximum.
2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	30 lbs/in (min.)	Test: ASTM D-4595
Tensile Modulus	20 lbs/in (min.)	Test: ASTM D-4595
Flow Rate	0.3 gal/ft²/minute (max.)	Test: ASTM D-4511
Filtering Efficiency	75% (min.)	Test: ASTM D-4151

3. Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.
4. Silt fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

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SILT FENCE

Silt Fence Design Criteria

Slope Steepness	Maximum Slope Length	Maximum Silt Fence Length
Flatter than 50:1	unlimited	unlimited
50:1 to 10:1	125 feet	1,000 feet
10:1 to 5:1	100 feet	720 feet
5:1 to 3:1	60 feet	300 feet
3:1 to 2:1	40 feet	250 feet
2:1 and steeper	20 feet	125 feet

Note: In areas of less than 20 clean and sandy soils (USDA general classification system, Soil Class A) maximum slope length and silt fence length will be unlimited. In these areas a silt fence may be the only perimeter control required.

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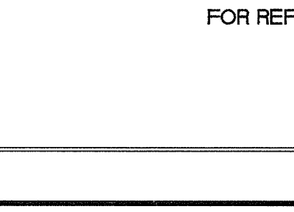
DETAIL 6A - STANDARD INLET PROTECTION



Construction Specifications

1. Excavate completely around the inlet to a depth of 18" below the bench elevation.
2. Drive the 2" x 4" construction grade framing posts 1' into the ground at each corner of the inlet. Place the first cross support two inches up from the bottom of the posts. Assemble the two portions of the 2" x 4" frame using the overlap joint shown on detail 6A. The top of the frame (except post at 2" below adjacent roadway shoulder or ditch flowline and safety issues may arise.
3. Staple the 1/2" x 1/2" wire mesh tightly around the frame and fasten securely. The ends must meet and overlap at a post.
4. Backfill the Geotextile Class E tightly over the wire mesh with the geotextile extending from the top of the frame to 18" below the inlet notch elevation. Fasten the geotextile firmly to the frame. The ends of the geotextile must meet at a post, be overlapped and fastened. When fastened down.
5. Backfill around the inlet in compacted 6" layers until the layer of earth is level with the notch elevation on the ends and top elevation on the sides.
6. If the inlet is not in a sump, construct a compacted earth dike around the inlet line directly below it. The top of the earth dike should be at least 6" higher than the top of the frame.
7. The structure must be inspected periodically and after each rain and the accumulated sediment removed when it becomes clogged.

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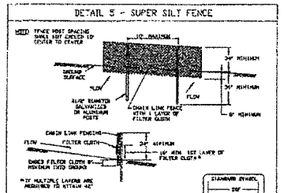
DETAIL 5 - SUPER SILT FENCE



Construction Specifications

1. Fencing shall be set to height and be constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42" fabric and 8' length posts.
2. Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence.
3. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.
4. Filter cloth shall be embedded a minimum of 8" into the ground.
5. When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded.
6. Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence, or when silt reaches 20% of fence height.
7. Filter cloth shall be fastened securely to each fence post with wire ties or staples at top and mid section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	30 lbs/in (min.)	Test: ASTM D-4595
Tensile Modulus	20 lbs/in (min.)	Test: ASTM D-4595
Flow Rate	0.3 gal/ft²/minute (max.)	Test: ASTM D-4511
Filtering Efficiency	75% (min.)	Test: ASTM D-4151

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SUPER SILT FENCE

Design Criteria
NATURAL RESOURCE CONSERVATION SERVICE

Slope	Slope Steepness	Slope Length (maximum)	Silt Fence Length (maximum)
0 - 10%	0 - 10:1	Unlimited	Unlimited
10 - 20%	10:1 - 5:1	300 feet	1,000 feet
20 - 33%	5:1 - 3:1	125 feet	1,000 feet
33 - 50%	3:1 - 2:1	100 feet	500 feet
50% >	2:1 >	50 feet	250 feet

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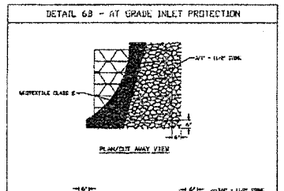
DETAIL 6B - AT GRADE INLET PROTECTION



Construction Specifications

1. Silt grade and wrap with Geotextile Class C to completely cover all openings. Use 6" overlap.
2. Place 3/4" to 1 1/4" stone, 6" of thick on the grate to secure the fabric and provide additional filtration.

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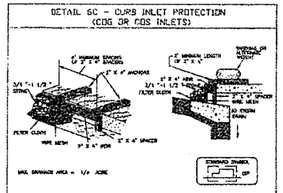
DETAIL 6C - CURB INLET PROTECTION (CDG OR CDS INLETS)



Construction Specifications

1. Attach a continuous piece of wire mesh (20" minimum width) by direct staple plus #3 to the 2" x 4" mat (including lateral length plus 3) as shown on the standard drawing.
2. Place a continuous piece of Geotextile Class E the same dimensions as the wire mesh over the wire mesh and properly attach it to the 2" x 4" mat.
3. Securely rest the 2" x 4" mat to a 6" long vertical spacer to be nailed between the mat and the curb face (max. 4" apart).
4. Place the reservoir against the curb throat and nail (minimum 3" knuths of 2" x 4" to the top of the mat at spacer horizontal). Place 2" x 4" stakers and nailed across the inlet top and be held in place by openings or alternate stakes.
5. The assembly shall be placed so that the end openers are a minimum 1' beyond both ends of the throat opening.
6. Form the 1/2 " x 1/2 " wire mesh and the geotextile fabric to the assembly outlet and against the face of the curb on both sides of the inlet. Place these 3/4 " - 1 1/2 " stone over the inlet mesh and fabric to a depth of 6 inches 1' minimum to prevent water from entering the inlet under the stone and being washed.
7. The type of protection must be inspected frequently and the filter cloth and stone replaced when clogged with sediment.
8. Assure that water flow does not bypass the inlet by installing a temporary earth or asphalt dike to direct the flow to the inlet.

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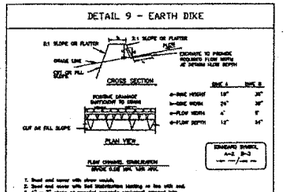
NATURAL RESOURCE CONSERVATION SERVICE	3 - 7S - 4	DISTRICT OF COLUMBIA DEPARTMENT OF HEALTH

DETAIL 9 - EARTH DIKE



	DIKE A	DIKE B
a-MIN. HEIGHT	18"	30"
b-MIN. WIDTH	24"	36"
c-SLOPE WIDTH	4'	6'
d-FLOW DEPTH	12"	24"

Construction Specifications

1. Dikes and cores with dikes should be constructed to the lines, grades and cross sections shown on the standard drawing.
2. Dikes and cores with dikes should be compacted by traversing the fill with construction equipment.
3. Fill material for dikes and cores with dikes should be free of roots, woody vegetation, rocks larger than 3", trash, or other objectionable material that could interfere with proper compaction.
4. Dikes and cores with dikes should be stabilized with vegetation or other protective measures immediately after construction.
5. Temporary dikes should be removed when the disturbed area is permanently stabilized.

U.S. DEPARTMENT OF AGRICULTURE	PAGE	WATERSHED PROTECTION DIVISION
NATURAL RESOURCE CONSERVATION SERVICE	3 - 9 - 1	DISTRICT OF COLUMBIA DEPARTMENT OF HEALTH

DISTRICT OF COLUMBIA
CARRYN GAE WILLIAMS
FEB04833
11-21-13
LICENSED
PROFESSIONAL ENGINEER

TAX LOTS 820 + 821

FOR REFERENCE ONLY

C-1200

WASHINGTON BUSINESS GROUP

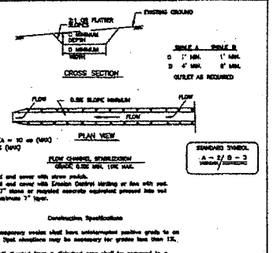
WHEELER RENAISSANCE - CIVIL SEDIMENT CONTROL DETAILS - 1

SCALE: NTS

DATE: 04/16/2014

C-11

DETAIL 10 - TEMPORARY SWALE



FLOW CHANNEL STABILIZATION
GRADE 0.500 MIN. 10% MAX.

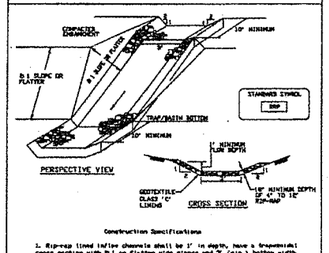
1. Seed and cover with straw mulch.
2. Seed and cover with Enkalin Control netting or tarp with net.
3. 4"-7" stone or recycled concrete equivalent pressed into soil to a minimum 3" layer.

Construction Specifications

1. All temporary swales shall have uninterrupted positive grade to an outlet. Spot elevations may be necessary for grades less than 1%.
2. Runoff diverted from a disturbed area shall be conveyed to a sediment trapping device.
3. Runoff diverted from an undisturbed area shall outlet directly into an undisturbed stabilized area at a non-erosive velocity.
4. All trees, brush, stumps, obstructions, and other objectional materials shall be removed and disposed of so as not to interfere with the proper functioning of the swale.
5. The swale shall be excavated or shaped to line, grade and cross section as required to meet the criteria specified herein and be free of local irregularities or other irregularities which will impede normal flow.
6. Fill, if necessary, shall be compacted by earth moving equipment.
7. All earth removed and not needed for construction shall be placed so that it will not interfere with the functioning of the swale.
8. Inspection and maintenance must be provided periodically and after each rain event.

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCE CONSERVATION SERVICE	PAGE D - 11 - 5	WATERSHED PROTECTION DIVISION DISTRICT OF COLUMBIA DEPARTMENT OF HEALTH

DETAIL 25 - RIP-RAP INFLOW PROTECTION

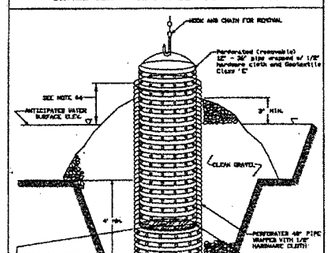


Construction Specifications

1. Rip-rap lined inflow channels shall be 3' in depth, have a trapezoidal cross section with 2:1 or flatter side slopes and 3' (min.) bottom width. The channel shall be lined with 4" to 12" rip-rap to a depth of 18".
2. Filter cloth shall be installed under all rip-rap. Filter cloth shall be Geotextile Class 'C'.
3. Entrance and exit sections shall be installed as shown on the detail sections.
4. Rip-rap used for the lining may be recycled for permanent outlet protection if the basin is to be converted to a stormwater management facility.
5. Gabion Inflow Protection may be used in lieu of Rip-rap Inflow Protection.
6. Rip-rap should blend into existing ground.
7. Rip-rap Inflow Protection shall be used where the slope is between 0:1 and 10:1. For slopes flatter than 10:1 use Earth Dike or Temporary Swale lining criteria.

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCE CONSERVATION SERVICE	PAGE F - 8 - 3	WATERSHED PROTECTION DIVISION DISTRICT OF COLUMBIA DEPARTMENT OF HEALTH

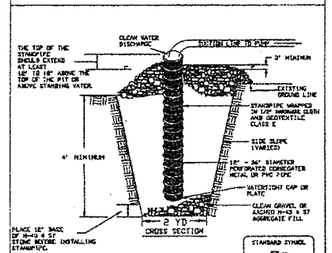
DETAIL 32A - REMOVABLE PUMPING STATION



Construction Specifications

1. The outlet pipe should be 48" dia. or larger, shall be new, be ck (part #' greater, in diameter than the inlet pipe, and have all perforations wrapped with 1/2" hardware cloth to prevent backfill materials from entering the perforations.
2. After installing the outlet pipe, backfill around outlet pipe with 2" aggregate or clean gravel.
3. The inside stand pipe (center pipe) should be constructed by perforating a corrugated pipe (of a diameter at least 24" less than the outlet pipe) with 1/2" dia. holes at 6" on center. The perforated pipe shall be wrapped with 1/2" hardware cloth. Where wrapped again with Geotextile Class C.
4. Both the inner and outer pipes should extend 12" to 18" above the anticipated water surface elevation or riser crest elevation when dewatering a basin.

DETAIL 32B - SUMP PIT

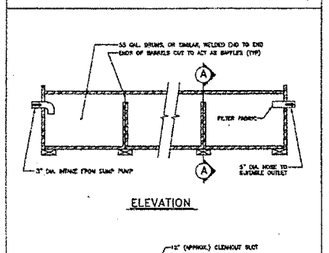


Construction Specifications

1. Pit dimensions are variable, with the minimum diameter being 2 times the standpipe diameter.
2. The standpipe should be constructed by perforating a 12" to 24" diameter corrugated or PVC pipe. Then wrapping with 1/2" hardware cloth and Geotextile Class C. The perforations shall be 1/2" x 6" slots or 1" diameter holes.
3. A base of filter material consisting of clean gravel or #57 stone should be placed in the pit to a depth of 12". After installing the standpipe, the pit surrounding the standpipe should then be backfilled with the sand filter material.
4. The standpipe should extend 18" to 18" above the lip of the pit or the riser crest elevation (drain dewatering unit) and the filter material should extend 3" minimum above the anticipated standing water elevation.

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCE CONSERVATION SERVICE	PAGE D - 21 - 3	WATERSHED PROTECTION DIVISION DISTRICT OF COLUMBIA DEPARTMENT OF HEALTH

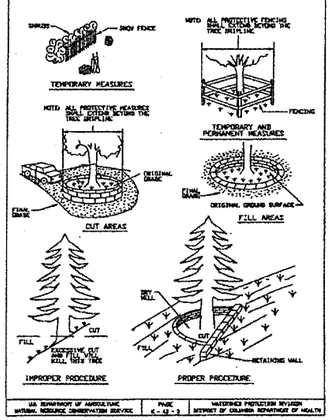
DETAIL 34 - PORTABLE SEDIMENT TANK (HORIZONTAL)



SOURCE: USDA - SCS

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCE CONSERVATION SERVICE	PAGE D - 25 - 3	WATERSHED PROTECTION DIVISION DISTRICT OF COLUMBIA DEPARTMENT OF HEALTH

DETAIL 74 - TREE PROTECTION



U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCE CONSERVATION SERVICE	PAGE C - 13 - 3	WATERSHED PROTECTION DIVISION DISTRICT OF COLUMBIA DEPARTMENT OF HEALTH

TAX LOTS 820 + 821

DISTRICT OF COLUMBIA
CARYN GAE WILLIAMS
PE904833
11-21-13
LICENSED
PROFESSIONAL ENGINEER

C-1201

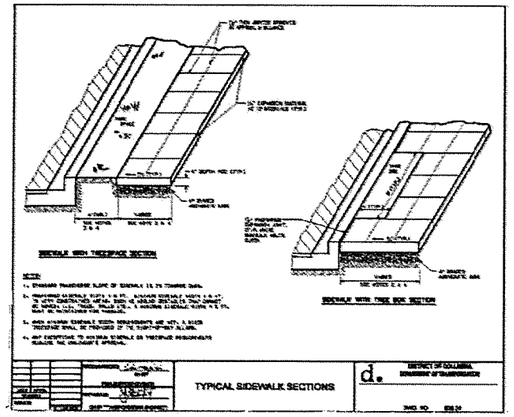
WASHINGTON BUSINESS GROUP

WHEELR RENAISSANCE - CIVIL SEDIMENT CONTROL DETAILS - 2

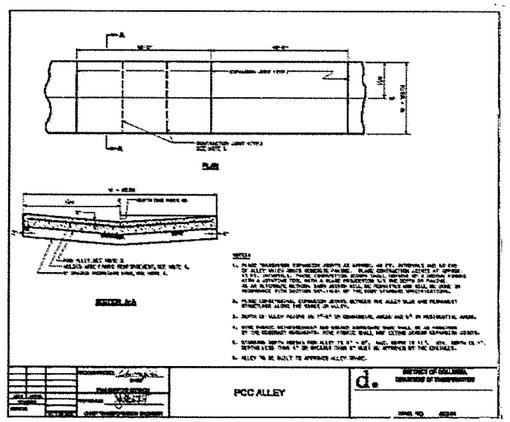
SCALE: NTS

DATE: 04/16/2014

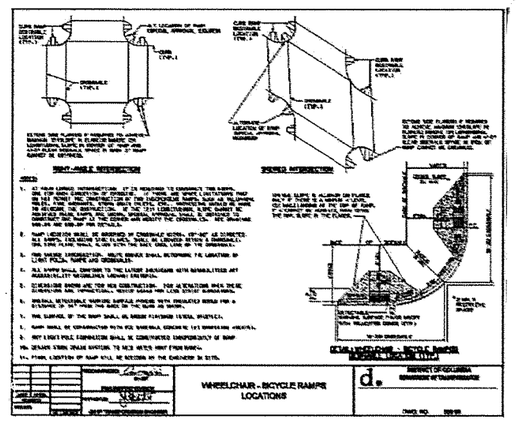
C-12



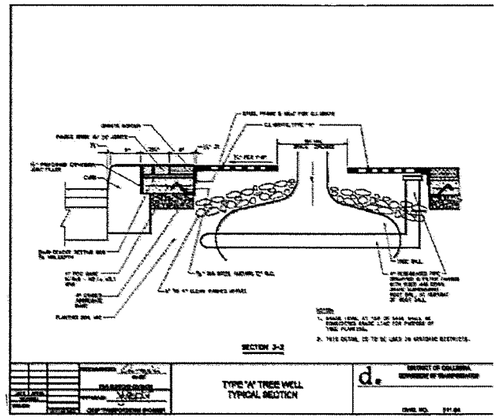
TYPICAL SIDEWALK SECTIONS



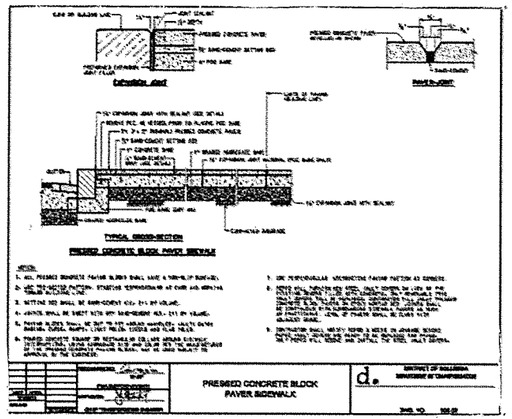
PCC ALLEY



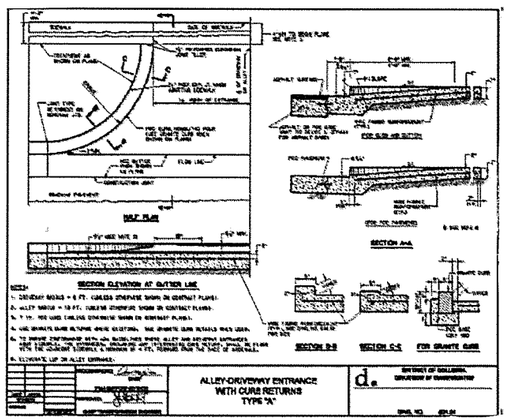
WHEELCHAIR - BICYCLE RAMPS LOCATIONS



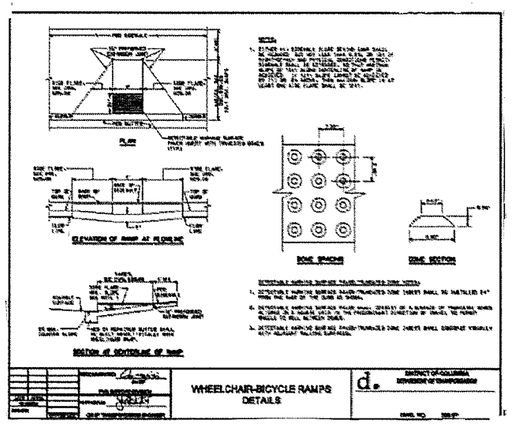
TYPE "A" TREE WELL TYPICAL SECTION



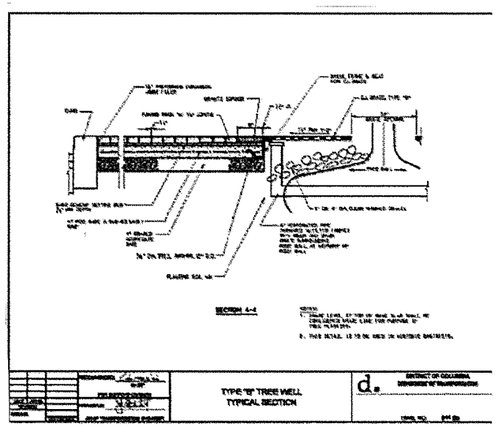
PRESSED CONCRETE BLOCK PAVER SIDEWALK



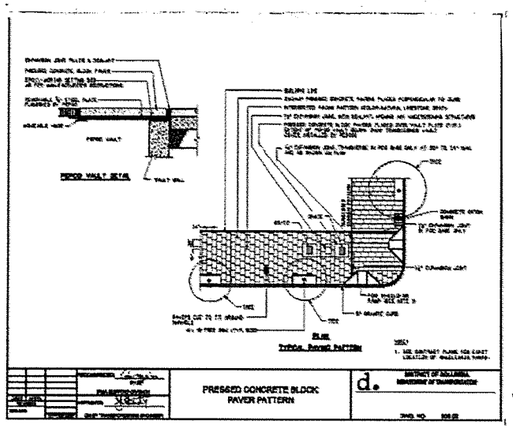
ALLEY-DRIVEWAY ENTRANCE WITH CURB RETURNS TYPE "A"



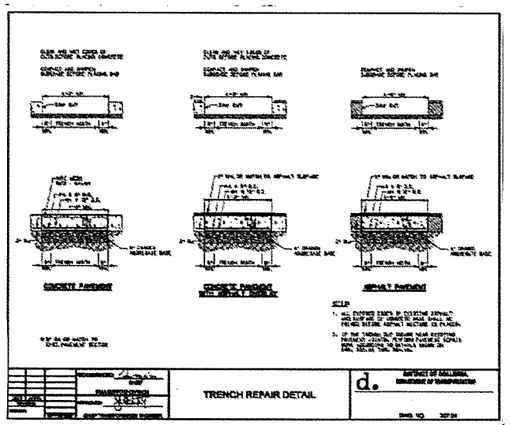
WHEELCHAIR-BICYCLE RAMPS DETAILS



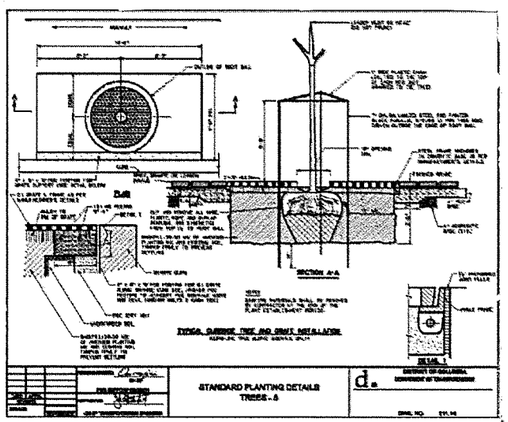
TYPE "B" TREE WELL TYPICAL SECTION



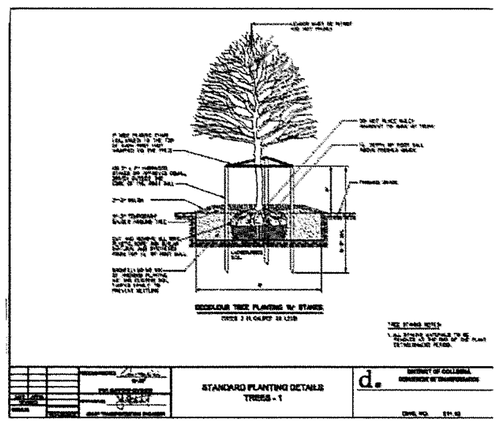
PRESSED CONCRETE BLOCK PAVER PATTERN



TRENCH REPAIR DETAIL



STANDARD PLANTING DETAILS TREES - A



STANDARD PLANTING DETAILS TREES - 1

FOR REFERENCE ONLY

WASHINGTON BUSINESS GROUP

WHEELER RENAISSANCE - TYPICAL SITE CONSTRUCTION DETAILS

SCALE: **NTS**

DATE: **02/19/2014**

METAL RAIL
CHAIN LINK FENCE
LP LIGHT POLE
UP UTILITY POLE
SDMH STORM DRAIN MANHOLE
GUY GUY
SMH SEWER MANHOLE
WMTR WATER METER
TRAV TRAVERSE CONTROL POINT
INLET STORM DRAIN INLET
FH HYDRANT
WMH WATER MANHOLE
WV WATER VALVE
15" TREE/SIZE
SIGN
PERVIOUS PAVEMENT
GREEN ROOF

NOT TO SCALE

PUBLIC ALLEY 20 FEET WIDE

PUBLIC ALLEY 20 FEET WIDE

FIELD ALLEY 20 FEET WIDE

BARNABY TERRACE 80 FEET WIDE PUBLIC STREET

WHEELER ROAD SE PUBLIC STREET OF VARIABLE WIDTH

FARNAM STREET 60 FEET WIDE PUBLIC STREET

LOT 32,092 S.F.

PENTHOUSE AREA

GREEN ROOF AREA

GREEN PATIO BELOW

GREEN ROOF AREA

GREEN ROOF AREA

PUTTING GREEN

MD STATE PLANE (NAD83)

VICINITY MAP
SCALE: 1" = 2000'

GRAPHIC SCALE
(IN FEET)
1 inch = 20 ft.

C-1400

WASHINGTON BUSINESS GROUP

WHEELER RENAISSANCE - OVERALL GREEN ROOF PLAN

SCALE: NTS
DATE: 04/16/2014

C-14

GREEN ROOF SOIL MIX

1.0 HYDROTECH LITE TOP ROOF GARDEN SOIL MIX

A. PROVIDE A PLANTER MIX USING THE FOUR COMPONENTS LISTED BELOW THAT WILL MEET THE ASTM STANDARDS AS FOLLOWS:

PERMATILL 5/16" EXPANDED SLATE	...55%*
USGA ROOT ZONE SAND	...30%
APPROVED COMPOST	...15%

*INCREASE OR DECREASE VOLUME TO MEET WEIGHT REQUIREMENT.

ROOF GARDEN MIX -- ESTIMATED WEIGHT OF 55% EXPANDED SLATE; 30% SAND; 15% COMPOST
1 CUBIC FOOT SATURATED (NOT DRAINED) ...91.2 POUNDS PER CUBIC FOOT
1 CUBIC FOOT TAMPED DAMP ...68.5 POUNDS PER CUBIC FOOT
1 CUBIC FOOT TAMPED (WET AND DRAINED) ..79.4 POUNDS PER CUBIC FOOT

1.1 PLANTER AND ROOT ZONE COMPONENTS

A. USGA ROOT ZONE SAND
1. GRAIN SIZE DISTRIBUTION (ASTM C136-95A)

SIEVE SIZE	% RETAINED
2.00MM	<3%
1-2MM	10% MAX
0.5-1MM	45% MAX
0.25-0.5MM	35% - 75%
0.15-0.25MM	15% MAX
0.05-0.15MM	5% MAX

B. 3/8" - #8 STALITE PERMATILL ROTARY KILN EXPANDED SLATE (3/8"-5/16")
1. ASTM C29 UNIT DRY WEIGHT LOOSE (45LB/CF - 55LB/CF)
2. ASTM C127 SPECIFIC GRAVITY: 1.45 -1.65, SSD
3. ASTM C330 ASTM GRADATION: 3/8" - #8 SIZE

3/8" - #8 (5/16")

SIEVE SIZE	% PASSING
1/2"	100
3/8"	50-100
#4	5-40
#8	0-20
#16	0-10

4. ABSORPTION (ASTM C127) NO MORE THAN 12%
5. THE EXPANDED SLATE MUST CONTAIN NO CLAY LUMPS OR ANY ORGANIC IMPURITIES.

C. COMPOST
1. COMPOST MUST BE DERIVED FROM MANURE AS THE NITROGEN SOURCE AND PINE BARK AS THE CARBON SOURCE. ADDITION OF YARD WASTE TO THE COMPOSTING PROCESS IS NOT ACCEPTABLE.
2. THE COMPOST MUST HAVE A MINIMUM THERMOPHILIC BIOREDUCTION TIME OF FOUR MONTHS WITH AERATION MANAGEMENT BASED ON TEMPERATURE MONITORING. THE COMPOST MUST BE UNDER COVER DURING A MINIMUM CURING TIME OF FOUR WEEKS.
3. THERMOPHILLIC TEMPERATURES MUST BE SUSTAINED AT ABOVE 150 DEGREES FAHRENHEIT FOR EIGHT WEEKS FOR WEED SEED AND PATHOGEN STERILIZATION
4. FINISHED COMPOST MUST BE SCREENED TO MINUS 1/2", PROTECTED FROM AND FREE FROM ANY OUTSIDE CONTAMINANTS DURING AND AFTER SCREENING AND CURING.
5. THE FINISHED COMPOST MUST FALL BELOW THE FOLLOWING SOLUBLE NUTRIENT LIMITS:
AMMONIUM (NH4-N) ...30PPM
NITRATE ...200PPM
pH MUST FALL BETWEEN ...6.0 AND 8.0
METALS AND CONTAMINANTS MUST MEET OR EXCEED US EPA STANDARD 40

1.2 MIXING PROCEDURE
A. COMPOST AND USGA SAND BLENDING
1. MECHANICALLY MIX 2 PARTS SAND TO 1 PART COMPOST TO PROVIDE A UNIFORM DISTRIBUTION OF THE COMPONENTS.
2. INADEQUATE MOISTURE CONTENT: DO NOT WORK PLANTING MEDIUM WHEN MOISTURE CONTENT IS LOW ENOUGH THAT DUST WILL FORM IN THE AIR.
3. DO NOT WORK PLANTING MEDIUM WHEN THE MOISTURE CONTENT IS HIGH ENOUGH THAT EXCESSIVE COMPACTION WILL OCCUR. AERATE PLANTING MEDIUM UNTIL MOISTURE IS UNIFORMLY REDUCED AS NECESSARY TO ACHIEVE OPTIMUM COMPACTION.

B. FINAL MIXING WITH PERMATILL EXPANDED SLATE
1. SATURATE THE PERMATILL EXPANDED WITH WATER TO ENSURE PROPER SOIL DISTRIBUTION.
2. MECHANICALLY MIX 9 PARTS OF THE SAND/COMPOST BLEND WITH 11 PARTS OF THE WETTED PERMATILL UNTIL A UNIFORM DISTRIBUTION OF THE COMPONENTS IS ACHIEVED.
3. WHEN STOCKPILING THE FINISHED MIX, COVER THE PILE WITH A PLASTIC TARP TO PREVENT DRYING OUT OR SOIL SEPARATION FROM RAIN.
4. TO REDUCE pH, ADD 0.25LB OF ELEMENTAL SULFUR PER CUBIC YARD OF SOIL MIX (TO LOWER pH 0.5 TO 1.0 UNIT)

1.3 DRAINAGE BALLAST OR FILL MATERIAL
1.3.1 3/4" STALITE EXPANDED SLATE
1. PLACE EXPANDED SLATE DIRECTLY OVER THE DRAINAGE SYSTEM AT SPECIFIED DEPTH TO MEET FILL AND GRADE SHAPE REQUIREMENT.
2. COVER BALLAST WITH WOVEN FILTER CLOTH BEFORE PLACING SOIL MIX OR SURFACE TREATMENT.

GREEN ROOF PLANTING METHODS

PLANTING (DIRECT SEEDING METHOD)

A. THE PLANTING MIXTURE SHOULD INCLUDE SPECIES THAT WILL GENERATE A CONTINUOUS GROUND COVER, MAXIMUM MATURE PLANT HEIGHTS SHALL BE LESS THAN 24 INCHES. LARGE DRIFTS OF SINGLE SPECIES SHOULD BE AVOIDED.

B. ALL EXTENSIVE PLANTING SCHEMES MUST INCORPORATE SEDUM SPECIES. THESE SHOULD BE ESTABLISHED FROM FRESH CUTTINGS. THE PLANT MIXTURE SHOULD INCLUDE A MINIMUM OF FOUR SPECIES OF SEDUM IN APPROXIMATELY EQUAL QUANTITIES. CUTTINGS SHOULD BE DISTRIBUTED OVER THE SURFACE OF THE MEDIA AT A MINIMUM RATE OF 25 LBS./1000 SQ. FEET. PLANTING USING SEDUM CUTTINGS CAN BE UNDERTAKEN FROM APRIL THROUGH SEPTEMBER. PERIODIC HAND WATERING MAY BE REQUIRED DURING THE PLANT ESTABLISMENT PERIOD DURING THE MONTHS OF JULY AND AUGUST IN THE EVENT OF DROUGHT.

C. SEED MIXTURES (OPTIONAL) SHOULD INCLUDE A MINIMUM OF FIVE PERENNIAL VARIETIES. TURF FORMING GRASSES SHOULD GENERALLY BE AVOIDED. CONSULT WITH ROOFSCAPES, INC. FOR RECOMMENDATIONS CONCERNING THE INCORPORATION OF GRASSES IN PLANTING MIXTURES. SEEDING RATES SHALL BE AS RECOMMENDED BY THE SEED PROVIDER. HOWEVER, IN NO CASE SHALL THE SEEDING RATES BE LESS THAN 250 SEED/SQ. YARD (ALL SPECIES COMBINED).

D. FOLLOW SEEDING RECOMMENDATIONS OF THE SEED PROVIDER. PREPARED ROOFMEADOW SEED MIXTURES ARE AVAILABLE THAT ARE TAILORED TO DIFFERENT CLIMATIC ZONES. SPECIFIC PLANTING "WINDOW" MAY APPLY FOR DIFFERENT SEED MIXTURES. PERIODIC HAND WATERING MAY BE REQUIRED DURING THE PLANT ESTABLISHMENT DURING THE MONTHS OF JULY AND AUGUST IN THE EVENT OF DROUGHT.

E. THOROUGHLY SOAK THE GROWTH MEDIA PRIOR TO COMMENCING THE BROADCAST DISTRIBUTION OF SEED OR CUTTINGS.

F. IMMEDIATELY COVER WITH THE WIND BLANKET AND SECURE. AS REQUIRED, SOAK THE PREPARED SEED BED AT THE COMPETION OF PLANTING OPERATIONS.

PLANTING (PLUG INSTALLATION)

A. ALL EXTENSIVE PLANTING SCHEMES MUST INCORPORATE SEDUM SPECIES. SEDUM SHOULD REPRESENT AT LEAST 30 PERCENT OF ALL INSTALLED PLANTS. ADDITIONALLY, THE PLANT MIXTURE SHOULD INCLUDE A MINIMUM OF FOUR DIFFERENT SPECIES OF SEDUM IN APPROXIMATELY EQUAL QUANTITIES.

B. NON-SEDUM VARIETIES SHOULD BE SLELCTED THAT ARE ADAPTED TO THE SPECIFIC GROWING CONDITIONS.

C. PLANT INSTALLATION MAY OCCUR APRIL THROUGH OCTOBER. PERIODIC HAND WATERING MAY BE REQUIRED DURING THE PLANT ESTABLISHMENT PERIOD DURING THE MONTHS OF JULY AND AUGUST IN THE EVENT OF DROUGHT.

D. PLANTS SHOULD BE ESTABLISHED FROM 72-CELL (DEEP) PLUGS PROPAGATED IN STERILE NURSERY MEDIUM, ACCORDING TO THE PLANT PROVIDER'S RECOMMENDATIONS. PLUGS LARGER THAN THIS CAN BE USED. HOWEVER, THE ESTABLISHMENT RATE IS TYPICALLY BETTER WITH THE SMALLER PLANTS. THE RECOMMENDED MINIMUM PLANTING RATE IS ONE PLANT PER SQ. FOOT.

E. THOROUGHLY SOAK THE GROWTH MEDIA PRIOR TO COMMENCING PLANTING.

F. THE PLUGS SHOULD BE SET INTO THE MEDIA TO THEIR FULL DEPTH AND THE MEDIA PRESSED FIRMLY AROUND THE INSTALLED PLUG. AT THE END OF EACH DAY, SOAK THOSE AREAS THAT HAVE BEEN NEWLY PLANTED.

SWM STRUCTURE COMPUTATIONS

WATER QUANTITY COMPUTATIONS

STORMWATER RUNOFF AT STUDY POINT

TOTAL DRAINAGE AREA TO STUDY POINT = 0.21 AC. = 9246 SF
IMPERVIOUS AREA = 0.21 Ac. = 9246 SF
GREEN AREA = 0.00 Ac. = 0 SF
TIME OF CONCENTRATION, T_c
T_c = 5 MIN
RUNOFF COEFFICIENT, C
$C = \frac{(0.21).90 + 0.90}{0.21}$

1. PEAK DISCHARGE FROM 15 YEAR STORM
INTENSITY OF 15 YEAR STORM EVENT WITH T_c = 5 MIN
I_{15}= 7.56 IN/HR.
PEAK RUNOFF FOR 15 YEAR STORM EVENT, Q_{PL}
$Q_{PL} = CI_{15} A = 0.90(7.56) 0.21 = 1.43$ CFS

2. PEAK DISCHARGE FROM 2 YEAR STORM
INTENSITY OF 2 YEAR STORM EVENT WITH T = 5 MIN
I_2= 5.28 IN/HR.
PEAK RUNOFF FOR 2 YEAR STORM EVENT, Q_{PL}
$Q_{PL} = CI_2 A = 0.35(5.28) 0.21 = 0.39$ CFS

QUANTITY STORAGE CALCULATIONS

3. VOLUME OF STORAGE NEEDED (V_s)
V_s= 1.25(Q_{15}- Q_2)300
V = 1.25(1.43 - 0.39)300 = 390 CF

WATER QUALITY COMPUTATIONS

STORMWATER RUNOFF AT STUDY POINT

TOTAL DRAINAGE AREA TO STUDY POINT = .20 AC. = 8623 S.F.
IMPERVIOUS AREA = 0.17 Ac. = 7490 SF
$WQ_v = \frac{.5\ i_2}{12} = \frac{(0.5)9246}{12} = 385$ CF

385 CF < 390 CF USE 390 CF FOR VOLUME

STORAGE PROVIDED
VOL. = 50 FT X $\frac{\pi(3)^2}{4}$ = 353 CF

STORAGE PROVIDED = 390 CF > 385 CF

NOTE: STORMWATER RUNOFF CALCULATIONS ARE BASED ON THE WASHINGTON, DC WATERSHED PROTECTION DIVISION ACCEPTABLE HYDROLOGIC METHODS AND MODELS. STORAGE CALCULATIONS ARE BASED ON METHODS FOR COMPUTING CHANNEL STORAGE PROTECTION STORAGE VOLUME.

GREEN ROOF COMPUTATIONS

STORAGE VOLUME OF GREEN ROOF

GREEN ROOF AREA= 4,684 SF

V_s= A_{GR} x h x v
V_s= 4684 x 0.33 x 0.4= 618 CF >390 CF OK

PERVIOUS PAVEMENT COMPUTATIONS

STORAGE VOLUME OF PERVIOUS PAVEMENT

PERVIOUS PAVEMENT AREA= 1,721 SF
STONE STORAGE AREA= 12"
S_v=1 X 0.35 X 1721= 602 CF

DISTRICT OF COLUMBIA
CARLTON DALE WILLIAMS
PE060833
9-17-13
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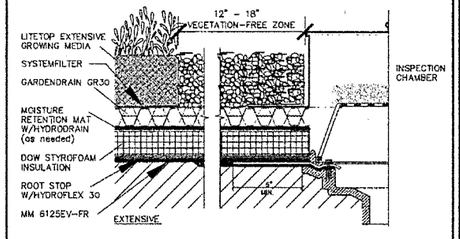
PROFESSIONAL ENGINEER

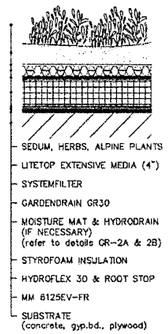


NOTES:
REFER TO MM6125-FR GUIDELINE DETAILS FOR MEMBRANE DETAILING SPECIFICS
INSPECTION CHAMBER DIMENSIONS: CHAMBER: 11" & 18" SQUARE; FLANGE: 4" (both sizes); CHAMBER HEIGHT: 4 3/4" EXTENSION HEIGHTS: 1", 3", & 1 1/2"

GARDEN ROOF ASSEMBLY	TYPICAL DRAIN	
	NO SCALE	GR-4

NOTE:
ADDITIONAL COMBINATIONS OF GARDEN ROOF ASSEMBLY COMPONENTS ARE POSSIBLE TO FIT SPECIFIC PROJECT PARAMETERS

EXTENSIVE



GARDEN ROOF ASSEMBLY	TYPICAL STANDARD GARDEN ROOF ASSEMBLIES	
	NO SCALE	GR-1A

C-1401

WASHINGTON BUSINESS GROUP

WHEELER RENAISSANCE - GREEN ROOF DETAILS

SCALE: NTS
DATE: 04/16/2014

C-15