

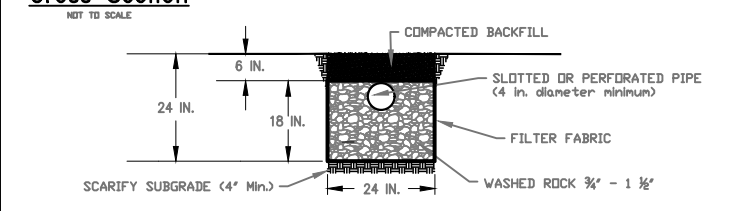
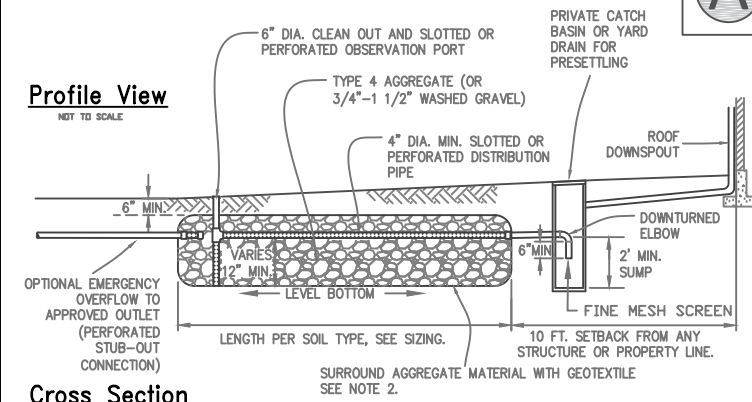
DRAINAGE PLAN REQUIREMENTS

THIS PLAN SHALL SHOW A SITE DRAWING INCLUDING ALL DRAINAGE FEATURES (HARD SURFACES, BMPs, DRAIN LINES, CATCH BASINS, INLETS, PUMPS, ETC.).

SEE THE INSTRUCTIONS FOR THE SMALL PROJECT STORMWATER PLAN IN CH. 5 OF THE CURRENT EDITION OF THE CITY OF PORT ANGELES' URBAN SERVICES STANDARDS AND GUIDELINES FOR REQUIRED SITE PLAN AND DRAINAGE ELEMENTS.

THE DETAILS DISPLAYED ARE A SELECTION OF COMMONLY USED ON-SITE STORMWATER MANAGEMENT BMPs. SEE THE DEPARTMENT OF ECOLOGY'S STORMWATER MANAGEMENT MANUAL FOR WESTERN WASHINGTON (DOE MANUAL), VOL. 3, FOR ADDITIONAL ON-SITE STORMWATER MANAGEMENT BMPs AND ADDITIONAL REQUIREMENTS FOR ALL BMPs.

INFILTRATION FACILITY (TRENCH/DRYWELL)



INFILTRATION FACILITY SIZING IS DEPENDENT ON SITE SPECIFIC CONDITIONS. A USDA CUSTOM SOIL REPORT IS REQUIRED TO BE SUBMITTED WITH ALL INFILTRATION FACILITY DESIGNS (SEE WEBSITE BELOW). THIS REPORT IS CONSIDERED TO BE THE ABSOLUTE MINIMUM NECESSARY TO SIZE A FACILITY AND THEREFORE THE MAXIMUM RECOMMENDED FACILITY DIMENSIONS SHALL BE REQUIRED. AN INFILTRATION FACILITY DESIGN THAT IS MORE APPLICABLE TO YOUR SPECIFIC SITE CAN BE APPROVED WITH A SIGNED SOILS REPORT GENERATED BY A QUALIFIED PROFESSIONAL OR A FIELD INFILTRATION TEST (PERFORMED PER SPECIFICATIONS, SEE WORKSHEET E).

USDA CUSTOM SOIL REPORT: <https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>

TRENCH SIZING:

PREDOMINANT/COMPOSITE USDA HYDROLOGIC SOIL GROUP

TYPE A: 75 LINEAR FEET OF TRENCH	TYPE B: 125 LINEAR FEET OF TRENCH	TYPE C: 190 LINEAR FEET OF TRENCH	TYPE D: INFEASIBLE
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TRENCH LENGTH STANDARDS ARE PER 1000 SQ. FT. OF CONTRIBUTING ROOF AREA.

USDA REPORT ACCOMPANIED BY FIELD INFILTRATION TEST (WORKSHEET E)

INFILT. RATE (IN/HR)	TRENCH	INFILT. RATE (IN/HR)	TRENCH
> 13.5	20 L.F.	0.75 - 1.4	125 L.F.
6 - 13.5	30 L.F.	0.3 - 0.74	190 L.F.
1.5 - 5.9	75 L.F.		

- MINIMUM DESIGN STANDARDS AND NOTES:**
- THE OVERFLOW COLLECTOR PIPE SHALL BE SEPARATED FROM THE DISTRIBUTION PIPE AND SET AT OR ABOVE THE ELEVATION OF THE DISTRIBUTION PIPE. THE MIN. RECOMMENDED LENGTH OF PERFORATED/SLOTTED PIPE IS 5'. CAP THE FREE END(S) OF THE PIPE.
 - GEOTEXTILE SHALL BE NON-WOVEN, LOW SURVIVABILITY, CLASS C PER WSDOT STD SPEC 9-33.2(1) TABLES 1 AND 2.
 - SCARIFY SUBGRADE TO A MIN. DEPTH OF 4" BEFORE LINING TRENCH WITH FILTER FABRIC AND FILLING WITH WASHED GRAVEL.
 - INDIVIDUAL TRENCH LENGTHS SHALL NOT EXCEED 100 FT.
 - MINIMUM SPACING BETWEEN TRENCH CENTERLINES SHALL BE 6 FEET.
 - CHECK WORKSHEET C FOR FULL LIST OF INFEASIBILITY CRITERIA.
 - SEE THE DOE MANUAL, VOLUME 3, SECTION 3.1.1 FOR ADDITIONAL INFORMATION.

DRYWELLS REQUIRE HIGH INFILTRATIVE SOILS AND ALWAYS REQUIRE SUPPORTING DOCUMENTATION BEYOND THE USDA SOIL REPORT (I.E. A SOILS REPORT BY A QUALIFIED PROFESSIONAL, A FIELD INFILTRATION TEST, OR OTHER).
 SIZING: [6-13.5 IN/HR = 3.3 CY/1000 SQ FT] [>13.5 IN/HR = 2.2 CY/1000 SQ FT]
 DRYWELLS MUST BE AT LEAST 48 INCHES IN DIAMETER AND MUST BE SPACED AT LEAST 10 FT APART.

PERFORATED STUB-OUT CONNECTION

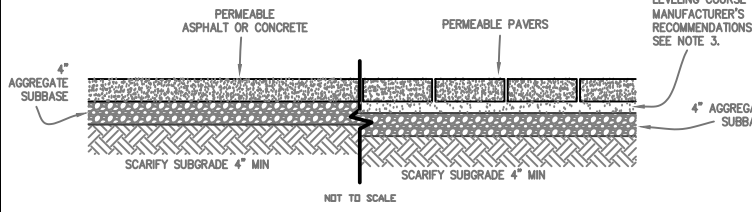


- NOTES:**
- FOR CONFIGURATION, DESIGN STANDARDS, AND CROSS-SECTIONAL DIMENSIONS - SEE ABOVE, INFILTRATION TRENCH.
 - TRENCH LENGTH SHALL BE THE MAXIMUM EXTENT ACHIEVABLE, AT LEAST 10 L.F. AND NOT TO EXCEED 100 L.F.

PERMEABLE PAVEMENT SURFACE



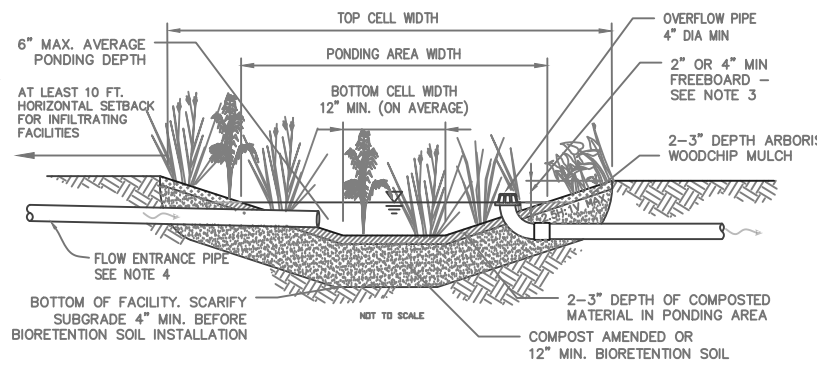
WEARING COURSE MINIMUMS
 ASPHALT = 4"
 CONCRETE DRIVEWAY = 8"
 CONCRETE SIDEWALK = 5"



- NOTES:**
- PERMEABLE PAVEMENT SURFACE AREA DIMENSIONS AND PAVEMENT SLOPE MUST BE SHOWN ON DRAINAGE CONTROL PLAN.
 - AGGREGATE SUBBASE SHALL BE CLEAN, CRUSHED GRAVEL OR CRUSHED ROCK - TYPE 22 OR 24 FOR WALKWAYS AND TYPE 13 FOR VEHICULAR APPLICATIONS.
 - THE LEVELING COURSE SHALL BE A FREE DRAINING AGGREGATE AND SHALL NOT RESTRICT THE INFILTRATION RATE THROUGH THE SYSTEM. FRACTURED JOINTING SAND IS NOT ALLOWED.
 - THE SUBGRADE SLOPE MUST BE LESS THAN 6% SLOPE TO BE USED FOR ON-SITE STORMWATER MANAGEMENT.
 - PERMEABLE PAVEMENT SURFACES DO NOT REQUIRE THE SETBACKS FOR INFILTRATING FACILITIES.
 - SEE WORKSHEET C FOR INFEASIBILITY CRITERIA.
 - SEE THE DOE MANUAL, VOLUME 3, FOR ADDITIONAL REQUIREMENTS.

RAIN GARDEN

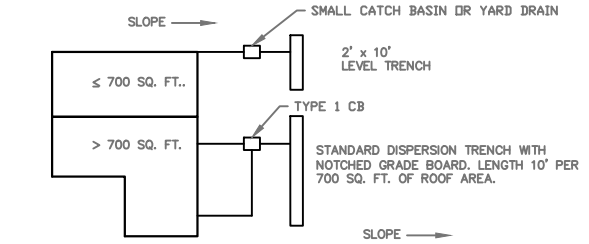
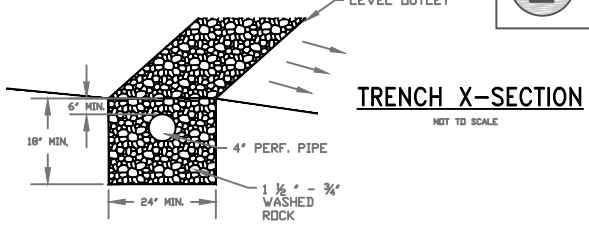
* INFILTRATION TEST REQUIRED *
 MINIMUM MEASURED INFILTRATION RATE = 0.3"/HR



SIZING: THE PONDING AREA SHALL BE NO LESS THAN 9% OF THE CONTRIBUTING AREA.

- MINIMUM DESIGN STANDARDS AND NOTES:**
- BOTTOM AND TOP CELL DIMENSIONS MUST BE SHOWN ON DRAINAGE CONTROL PLAN.
 - PONDING DEPTH AND FREEBOARD SHALL BE NOTED ON THE DRAINAGE CONTROL PLAN.
 - MINIMUM FREEBOARD SHALL BE 2 INCHES FOR CONTRIBUTING DRAINAGE AREAS LESS THAN 3,000 SF AND 4 INCHES FOR AREAS 3,000 SF TO 5,000 SF.
 - FLWS MUST ENTER THE CELL ABOVE THE MULCH LAYER. PROVIDE ENERGY DISSIPATION SUCH AS A SPLASH BLOCK OR ROCK PAD.
 - HORIZONTAL SETBACK SHALL BE A MINIMUM OF 10 FT. FROM ANY STRUCTURE OR PROPERTY LINE.
 - SEE THE WESTERN WASHINGTON RAIN GARDEN HANDBOOK FOR MORE DETAILED INFORMATION. A COPY OF THE MANUAL CAN BE DOWNLOADED FROM THE CITY'S WEBSITE OR DIRECTLY FROM THE LINK BELOW: <http://wa-portangeles.civiciplus.com/DocumentCenter/Home/View/307>

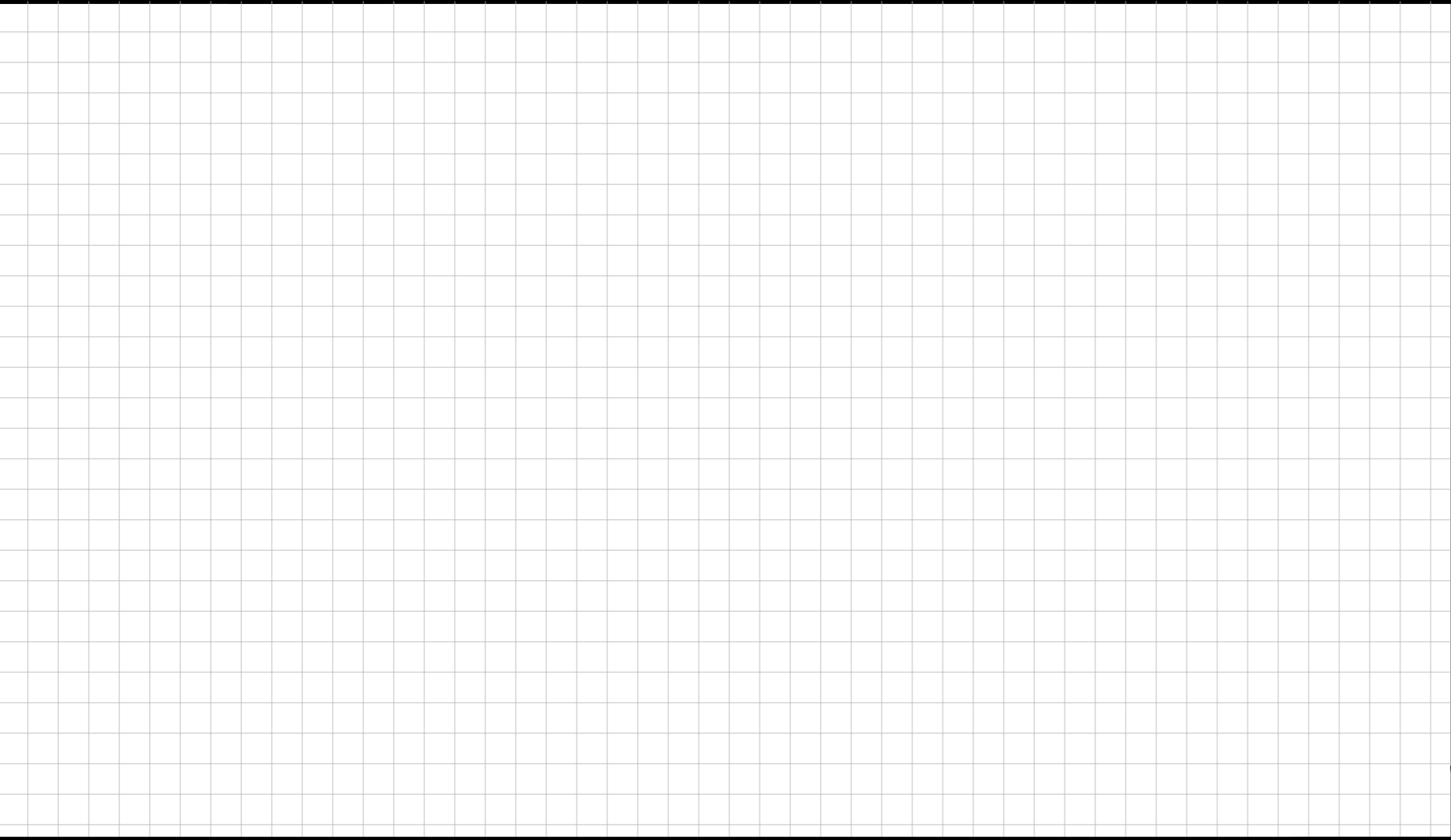
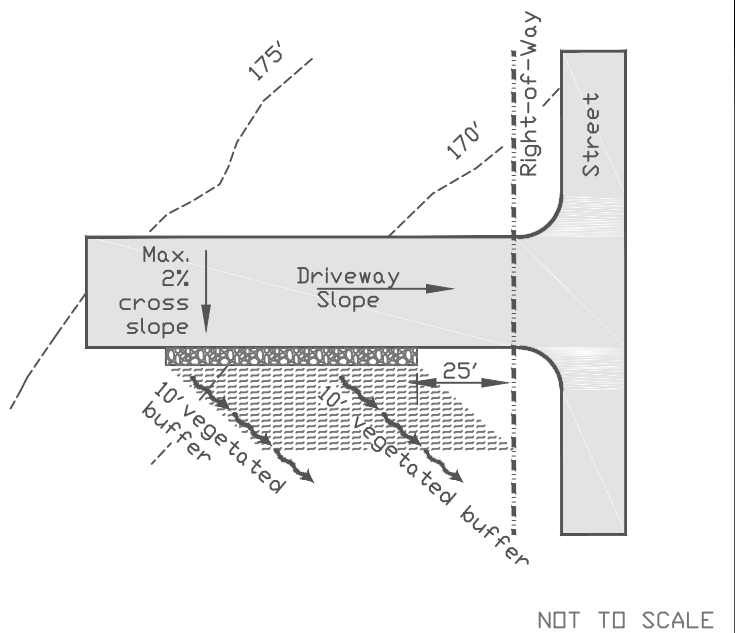
DISPERSION TRENCH



- MINIMUM DESIGN STANDARDS AND NOTES:**
- TRENCH SHOULD BE ORIENTED PERPENDICULAR TO THE FLOW PATH.
 - TRENCHES SHOULD BE SPACED AT LEAST 50' APART.
 - NOTCHED GRADE BOARD SHOULD HAVE 2" DEEP V-NOTCHES SPACED 18" APART ON CENTER.
 - MUST HAVE A VEGETATED FLOW PATH OF AT LEAST 25' BETWEEN THE OUTLET AND ANY STRUCTURE, PROPERTY LINE, STREAM, ETC. AT LEAST 50' FROM A SLOPE STEEPER THAN 15%.

SHEET FLOW DISPERSION

Flat to Moderately Sloping Driveways



STORMWATER SITE PLAN (SWSP)

UTILIZATION OF THIS TEMPLATE IS OPTIONAL. IF ELECTED BY THE APPLICANT FOR USE, THE BMPs SHOWN ON THIS SHEET MUST BE BUILT AS SPECIFIED HERE AND IN THE MOST RECENT DOE MANUAL. IF ANY CONFLICT EXISTS, THE DOE MANUAL SUPERSEDES. ONCE APPROVED, THIS PLAN SET AND ACCOMPANYING DOCUMENTS REPRESENT A BINDING AGREEMENT BETWEEN THE CITY OF PORT ANGELES AND THE APPLICANT AS TO THE LOCATION, TYPE, DIMENSION, AND MANNER OF INSTALLATION OF PERMANENT AND TEMPORARY STORMWATER BMPs. UNAPPROVED DEVIATION FROM THIS PLAN SET MAY RESULT IN A NOTICE OF VIOLATION, ADMINISTRATIVE ORDER, PENALTY, OR STOP-WORK. TO REQUEST A CHANGE TO THE PLANS WITH REGARDS TO STORMWATER, CALL 417-4701.

CITY OF PORT ANGELES

BY APPROVAL OF THESE PLANS, NO APPROVAL IS MADE OR IMPLIED REGARDING ANYTHING IN THESE PLANS THAT CONFLICT WITH THE CITY'S CURRENT URBAN SERVICES STANDARDS AND GUIDELINES, UNLESS EXPLICITLY STATED AND NOTED ON THE APPLICABLE SHEET(S) OR APPROVED SEPARATELY IN WRITING BY THE CITY ENGINEER.



DATE: _____

Address: _____

Property Owner: _____

Scale: 1" = _____

SHEET

* REMINDER: ALL PERMANENT STORMWATER FACILITIES REQUIRE A ROUGH-IN INSPECTION PRIOR TO PIPE BURIAL. TO SCHEDULE AN INSPECTION CALL 417-4815. PLEASE PROVIDE A MINIMUM OF 24 HR NOTICE FOR INSPECTIONS. *