Watershed Protection Program
Department of Public Works

COUNTY OF SAN DIEGO BMP DESIGN MANUAL
PUBLIC INFORMATION SESSION Q&A (presented 10/27/2020)

Q1. LOOKING AT ASTM C33, THERE DOES NOT APPEAR TO BE A "CHOKER SAND" SPECIFICATION. IS THERE ANOTHER SPOT THAT DESCRIBES THE CHOKER SAND SPECIFICATION?

Please see the County Green Streets Supplement to the Greenbook Specifications. Graded aggregate material is installed as a choker layer to separate BSM from the drainage rock reservoir layer. The purpose of this layer is to limit migration of sand or other fines from the BSM. The choker material consists of two layers of choking aggregate increasing in particle size. The top layer (closest to the BSM) of the choker shall be constructed of thoroughly washed ASTMC33 Sand material as detailed in Greenbook Table 200-1.5.5. The bottom layer of the choker shall be constructed of thoroughly washed ASTM No. 8 aggregate material conforming to gradation limits contained in Greenbook Table 200-1.2.1.

The County Green Streets Supplement to the Greenbook Specifications can be found here:

https://www.sandiegocounty.gov/content/dam/sdc/dpw/WATERSHED_PROTECTION_PROGRAM/watershedpdf/Dev_Sup/GS-SSP_GB.pdf

Q2. CAN A CONCRETE CHANNEL OR MANMADE SWALE ON A REDEVELOPMENT PROJECT BE CONSIDERED A NATRUAL FEATURE?

No, because a natural feature would only be defined as a natural stream.

Q3. IS THERE ANY SOIL THICKNESS REQUIREMENT FOR LANDSCAPE TO BE SUSTAINABLE LANDSCAPE?

Yes, a minimum of 6-inches (12-inches preferred). See the amended soil fact sheet SD-F in Appendix E of the BMP Design Manual. Refer to the other subsurface thicknesses for other BMPs in Appendix E.

https://www.sandiegocounty.gov/content/dam/sdc/dpw/WATERSHED_PROTECTION_PROGRAM/watershedpdf/Dev_Sup/BMPDM_AppE_Sep2020.pdf

Q4. **CAN RUNOFF FROM A TRASH ENCLOSURE (INTERIOR SURFACE AREA) DRAIN TO ONESITE BIOFILTRATION BMPS?**

Yes, runoff from the trash enclosure can drain to onsite biofiltration BMPs. However, trash enclosures are required to be covered to prevent contact with storm water. Refer to BL-5 in Appendix C of the BMP Design Manual for trash enclosure requirements.

https://www.sandiegocounty.gov/content/dam/sdc/dpw/WATERSHED_PROTECTION_PROGRAM/watershedpdf/Dev_Sup/BMPDM_AppC_Sep2020.pdf

Q5. **IN REGARD TO THE IMPERVIOUSNESS OF POOLS COUNTING TOWARDS PDP DETERMINATION IN SECTION 1.4.1, THE WORDING "POOL SURFACES" IT ISNT PART OF IT. WHERE DOES IT SAY THE WORDS "COUNT POOLS INTO THE REQUIRED AREAS"? IT IS NOT LISTED IN THE CATEGORIES AND POOLS ARE NOT LISTED IN SECTION 1.4.2 AS ADDITIONAL DEFINITIONS. SPECIFICALLY, SINCE LATER IN TABLE B.1-1, POOLS ARE CALLED IMPOUNDMENT AND CONTRIBUTE TO A '0' TO THE DCV. THIS IMPLIES THAT POOLS ARE NOT AN ISSUE WHEN PERMITTED CORRECTLY AND WILL REDUCE DCV SINCE THEIR CONTRIBUTION OF FLOW IS ZERO, BUT AREA IS THEN ADDED TO THE CALCULATIONS.**

The removal of the exclusion language in Section 1.4.1 pertaining to swimming pools and water features infers that those areas should be included in the impervious area calculations for PDP determination, in other words, they can no longer be excluded. This change only affects PDP determination.

Q6. **SIGNAGE OR STENCILING FOR SMALL AREA DRAINS (6", 8", 10" DIA) FOR PRIVATE DEVELOPMENT WILL BE VERY DIFFICULT. IS THERE ANY WAY WE CAN SIMPLFY THIS REQUIREMENT BY ADDING A NOTE SAYING 12" OR SMALLER WILL NOT REQUIRE SIGNAGE?**

Signage is recommended for all storm water conveyance system inlets and catch basins within the project area. Refer to SC-F in Appendix C of the BMP Design Manual.

https://www.sandiegocounty.gov/content/dam/sdc/dpw/WATERSHED_PROTECTION_PROGRAM/watershedpdf/Dev_Sup/BMPDM_AppC_Sep2020.pdf

Q7. **IS A SWQMP ALWAYS REQUIRED?**

Under the County's land use authority, any project that requires a permit (private projects) or an authorization for public solicitation of bids (public projects) needs to be reviewed for stormwater requirements, and fill out an Intake Form in order to determine

the type of SWQMP to accompany the project. Refer to the Sections 1.3 and 1.4 of the BMP Design Manual and the Intake Form located under "Submittal Templates" here:

https://www.sandiegocounty.gov/content/sdc/dpw/watersheds/DevelopmentandConstruction.html

Q8. DO PIPING ROOF DRAINS AND DRAINING IMPERVIOUS STREETS TO A BIOFILTREATION BASIN COUNT AS IMPERVIOUS AREA DISPERSION D-B?

No, the roof drains and streets will be counted as the Design Capture Volume (DCV) and will counted as being treated by the biofiltration basin.

Q9. IS THERE A MINIMUM NUMBER OF DMAS? WHAT IS DE MINIMIS?

There is not a minimum number of DMA's. The amount of DMA's is project specific and depends on where the BMPs are located and how the project drainage is designed. The De Minimis DMAs are areas around the project perimeter that are infeasible to treat. Each De Minimis area should be less than 250-square feet and the sum of all De Minimis areas should less than 2% of the total project area. Refer to Section 5.2.2 of the BMP Design Manual.

https://www.sandiegocounty.gov/content/dam/sdc/dpw/WATERSHED_PROTECTION_PROGRAM/watershedpdf/Dev_Sup/BMPDM_Complete_Sep2020.pdf

Q10. CAN WE STILL EXEMPT AREAS THAT ARE ROUTED TO THE SEWER THAT DO NOT INTERCEPT STORMWATER?

If you are referring to covered building areas, such as underground parking structures, there is no language preventing you to do this.

Q11. CAN YOU EXPLAIN THE DIFFERENCE BETWEEN ENHANCED SITE DESIGN AND SIGNIFICANT SITE DESIGN BMPS?

The difference between Enhanced Site Design BMPs (SD-BMPs) and Significant Site Design BMPs (SSD-BMPs) is that Enhanced SD BMPs can be used for DCV reductions, while SSD-BMPs are used to fully retain the DCV to satisfy either the pollutant or flow control requirements or both.

Q12. IN DETENTION BY INFILTRATION, SOMETIMES THE SOIL TYPE DOES NOT ABSORB STORM WATER QUICK ENOUGH AND IT CAUSES FLOODING. IS THERE A PLAN TO TEST SOIL TYPE PROPR TO APPROVAL OF INFILTRATION TYPE STRUCTURAL BMPS?

Yes, refer to Appendix D of the BMP Design Manual.

https://www.sandiegocounty.gov/content/sdc/dpw/watersheds/DevelopmentandConstruction/BMP_Design_Manual.html

Q13. **CAN YOU PROVIDE A SUMMARY OF THE CHANGES TO THE SECTIONS RELATED TO HYDROMODIFICATION MANAGEMENT?**

A list of 2020 Revisions, as well as a List of Updates from the January 2019 and 2016 Editions can be found at the following link:

https://www.sandiegocounty.gov/content/dam/sdc/dpw/WATERSHED_PROTECTION_PROGRAM/watershedpdf/Dev_Sup/2020_BMPDM_Updates.pdf

Q14. **MIN. 2" FREEBOARD SHOULD BE REMOVED OR STATEMENT SHOULD BE REWORDED AS DISCUSSED TO 1-FT IN THE MANUAL.**

Assuming the 1-foot is (without having the background information to this question) regarding infiltration basins INF-1 in Section E.9 of Appendix E in the BMP Design Manual, infiltration basins do require 1-foot of freeboard. Bioretention/biofiltration basins only require a minimum of 2" of freeboard. Refer to the fact sheets in Appendix E of the BMP Design Manual.

https://www.sandiegocounty.gov/content/sdc/dpw/watersheds/DevelopmentandConstruction/BMP_Design_Manual.html

Q15. **CAN WE USE THE 0.1 RF FOR PERMEABLE PAVEMENT IF THEY ARE NOT ENGINEERED/ ENHANCED DESIGN? DOES THE 0.1 RF FOR LANDSCAPED AREAS MEAN THE LANDSCAPED AREA NEEDS TO BE UNDERLINED WITH ENGINEERED/ AMENDED SOIL BACK TO FREEBOARD FOR BMP? IS THE 2" APPLICABLE FOR HMP AND WQ AS WELL?**

Permeable pavement will need to comply with Fact Sheets SD-D and INF-3 in Appendix E of the BMP Design Manual to claim a runoff factor of 0.1. Otherwise, a runoff factor of 0.9 shall be used. It's not clear what the 2" is referring to in the question. If applying to WQ, the BMP will need to be sized treat the DCV. If applying to HMP, the BMP will need to meet the continuous simulation modeling requirements.

Q16. **CAN YOU EXPLAIN WHEN 0.75DCV CAN BE USED, AND THE PARAMETER REQUIREMENTS?**

The 0.75 DCV refers to the storage volume, including pore spaces and pre-filter detention volume. Using the Automated Pollutant Control Worksheet, it will always default to use the 0.75 DCV.

Q17. **WE HAVE NOTICED THAT THE HMP VOLUMES REQUIRED BY THE SDHM PROGRAM ARE LARGER THAN THE ONES REQUIRED BY THE SWMM MODEL. DOES ANYONE KNOW WHY.**

This is a result of SWMM taking more credit for evaporation and evapotranspiration.

Q18. **IS A BMP CONSIDERED TO BE "USED FOR FLOOD CONTROL" IF IT WILL RECEIVE, BUT IS NOT EXPLICITLY DESIGNED TO DETAIN PEAK FLOW RATES? FOR EXAMPLE, IF THE PEAK FLOW RATE IS REDUCED BY INCREASING PERVIOUS AREA ON SITE AND A BMP IS DESIGNED TO CONTROL POLLUTANT AND HYDROMODIFICATION EFFECTS.**

BMPs will need to follow the conjunctive use handout in the link below. Credit can be taken for flood control for a volume above the pollutant control storage volume.

https://www.sandiegocounty.gov/content/dam/sdc/dpw/WATERSHED_PROTECTION_PROGRAM/susmppdf/Conjunctive_Use_Handout.pdf

Q19. **MY QUESTION IS SPECIFICALLY ABOUT WHEN INFILTRATION IS NOT RECOMMENDED BY THE GEOTECH, CAN THE SOIL UNDERNEATH/AROUND THE BIOFILTRATION BASIN WITH IMPERMEABLE LINER BE COMPACTED SIMILAR TO THE REST OF THE SITE, RATHER THAN TO THE SPECIFICATIONS IN THE BMP DESIGN MANUAL (ASKING FOR 10% LESS COMPACTION THAN THE REST OF THE SITE). IT SEEMS THERE IS NO REASON FOR 10% LESS COMPACTION WHEN NO INFILTRATION IS RECOMMENDED OR EXPECTED DUE TO SITE CONDITIONS AND IMPERMEABLE LINERS.**

This seems logical and allowable since this scenario is not specified anywhere.

Q20. **WHAT TYPE OF DETAIL/ REPORT DOES THE COUNTY REQUIRE TO CONFIRM THAT THE ASSOCIATED STORM WATER IS ROUTED TO THE TREE WELL(S)? FOR EXAMPLE, IF A PDP SPREADSHEET INDICATES THAT A TREE WELL PROVIDES CREDIT FOR 420 CF OF DCV, DO YOU HAVE A STANDARDIZED FORM OR EXHIBIT FOR THE APPLICANT TO COMPLETE TO SHOW THAT 420 CF OF STORM WATER RUNOFF IS ACTUALLY DIRECTED TO THE TREE WELL DURING A WATER QUALITY STORM EVENT (INCLUSIVE OF EVAPOTRANSPIRATION)? THE PRESCRIBED TREE WELL CREDITS ARE BASED ON THE MAXIMUM AMOUNT OF STORM WATER THAT CAN BE TREATED.**

There is a project example with required documentation for a PDP project that uses Tree Wells as SSD-BMPs located here:

https://www.sandiegocounty.gov/content/dam/sdc/dpw/WATERSHED_PROTECTION_PROGRAM/watershedpdf/Dev_Sup/PDP_SWQMP_Example.pdf

Q21. CAN TREE WELLS HAVE SUBDRAINS AND COUNT AS SSD-BMPS?

Tree Wells can have subdrains in SSD-BMPs if being used for pollutant control. If the SSD Tree Well is proposed for flow control, then no subdrain can be used if using the DCV multiplier. Otherwise, if a subdrain is still proposed without using the DCV multiplier, then a continuous simulation model will need to be done. Refer to the Tree Well fact sheet SD-A in Appendix E of the BMP Design Manual.

https://www.sandiegocounty.gov/content/sdc/dpw/watersheds/DevelopmentandConstruction/BMP_Design_Manual.html

Q22. IS THERE A MINIMUM MULCH AREA REQUIRED AROUND TREE WELLS SUCH THAT THE CLOGGING RISK IS MINIMIZED AND WATER WILL REACH THE SOIL OVER THE LONG TERM?

Mulch is optional for Tree Wells and is required for biofiltration/bioretention areas.

Q23. IF WE ARE USING SIGNIFICANT SITE DESIGN BMPS (SSD-BMPS) THEN WE DO NOT NEED SOIL TESTING?

Soil type (A thru D) is an input in the SSD-BMP calculator. No soil testing is required.

Q24. THE TREE WELL DCV MULTIPLIER IS BASED UPON 6" DEPTH INCREMENTS. THE ORIGINAL TREE WELL TABLE HANDOUT FOR TREE WELLS HAD 1" INCREMENTS. IF THE ORIGINAL TABLE WAS BASED UPON SWMM MODELING, WHY IS INTERPOLATION OF THE MULTIPLIER NO LONGER APPROPRIATE?

The first formal publication of the Tree Well sizing factors table was on the January 1, 2019 edition of the County BMP Design Manual, which is the same table contained in the September 15, 2020 edition of the County BMP Design Manual. Successful implementation of Tree Wells thru design, plan check, construction and inspection require reducing the number of parameters that can lead to errors.

Q25. HOW WOULD YOU EXPECT TO SEE THE INPUT DESCRIPTION "IMPERVIOUS SURFACES DIRECTED TO DISPERSION AREA PER SD-B" REPRESENTED THROUGHOUT A PDP SWQMP IN TERMS OF EXHIBITS AND WORKSHEET CALCULATIONS?

A PDP SWQMP shall include a DMA exhibit to show this scenario and completion of the Automated Stormwater Pollutant Control Worksheet.

Q26. PLEASE CONFIRM THAT USING 0.1 RF FOR LANDSCAPED AREA IS OKAY EVEN IF WE ARE NOT USING AMENDED/ENGINEERED SOIL

Yes, a runoff factor of 0.1 can be used for landscaped areas. Refer to Appendix B of the BMP Design Manual, Table B.1-1.

Q27. HOW DO LINES 13 AND 18 IN THE TREE WELL SIZING CALCULATOR CORRESPOND TO EACH OTHER?

Line 13 in Step 3 of the SSD-BMP tool refers to the minimum soil volume required in a tree well, which is 2 cubic feet per square foot of mature tree canopy projection area based on the selected mature canopy diameter. Line 18 corresponds to line 13, because Line 18 equals Line 13 divided by the tree well soil media depth. Line 18 represents the total area of tree well soil required for each tree based on the tree well soil depth.

Q28. PLEASE NOTE THAT MY PREVIOUS QUESTION (SUBMITTED DURING THE LAST SECTION) WAS IN REFERENCE TO A DESIGN FOR MULTIPLE TREE WELLS (STREET TREES) ALONG A ROADWAY TO REDUCE WQV FOR A SYSTEM VERSUS THE TREE WELL SERVING AS THE SOLE TREATMENT OF A DMA.

If Tree Wells are used to reduce the DCV in a DMA and ultimately draining to a Structural BMP, then the Pollutant Control Spreadsheet is the correct tool to use instead of the SSD-BMP tool.

The Pollutant Control Spreadsheet is located here:

https://www.sandiegocounty.gov/content/dam/sdc/dpw/WATERSHED_PROTECTION_PROGRAM/watershedpdf/Dev_Sup/County_BMPDM_PC_Worksheet.xlsx

Q29. ARE TREE WELLS SUBJECT TO THE SAME INFILTRATION FEASIBILITY DETERMINATION AS STANDARD RETENTION BMPS? THESE BMPS ARE OFTEN PROPOSED AS THE ONLY SOLUTION FOR THE MOST CHALLENGING DMAS ON A PROJECT SITE, SOMETIMES WITH NUANCED CONSTRAINTS THAT DO NOT SURFACE DURING A PLAN CHECK OR UNTIL CONSTRUCTION. DO THESE AREAS WARRANT A HIGHER LEVEL OF SCRUTINY BEFORE REACHING AN IMPASSE IN THE FIELD?

Tree Wells are not subject to the same infiltration feasibility as standard retention BMPs because the scale of a tree well treats a much smaller area. The DCV multipliers are designated based on the Hydrologic Soil Group.

Q30. FOR THIS EXAMPLE, HOW ARE THE HYDROLOGIC REQUIREMENTS ACHIEVED? IS THERE A WAY TO COMBINE THE TREE WELLS WITH THE FLOOD CONTROL VOLUME?

Tree Wells are not intended for flood control. A project specific modification may be made to deepen a particular Tree Well to account for flood control.

Q31. THE 16' X 16' TREE WELL SEEMS A BIT EXCESSIVE IN SIZE. A FOOTPRINT OF 256 SF FOR A TREE WELL MAY BETTER BE USE AS A BIOFILTRATION BASIN INSTEAD?

Applicants can choose between a variety of BMPs what they think works best for their sites.

Q32. ON TREE WELL CALCULATIONS, REGARDING THE MINIMUM REQUIRED AREA, CAN A PORTION OF THE TOP SURFACE AREA BE COVERED BY IMPERVIOUS AREA?

Refer to the Green Street Standard Drawings and the Tree Well Fact Sheet SD-A in Appendix E of the BMP Design Manual for optional Tree Well cross section details.

Q33. DRAWDOWN ANALYSIS: WHAT IS THE MAXIMUM HEAD THAT CAN BE USED FOR DRAWDOWN ANALYSIS? IS THIS ONLY THE HEAD WITHIN THE GRAVEL STORAGE LAYER OR HEAD CORRESPONDING TO THE SURFACE PONDING DEPTH (=GRAVEL/FILTER LAYER+ SOIL LAYER + PONDING DEPTH)?

Yes, use the head corresponding to the surface ponding depth. The drawdown time is only the surface ponding time. Once the water is below the surface, the drawdown time doesn't need to account for subsurface layers. Refer to the fact sheets in Appendix E of the BMP Design Manual.