TECHNICAL STAFF REPORT
SYMPHONY STREAM SITE 5 RESTORATION
Planning Board Meeting of March 16, 2017

File No./Petitioner: SDP-15-061, Howard Hughes Corporation

Project Name: Symphony Stream Site 5 Restoration, (SDP-15-061)

DPZ Planner: Nicholas Haines, (410) 313-4333, nhaines@howardcountymd.gov

Request: To approve Site Development Plan (SDP-15-061) for a 0.83 acre, stream restoration in accordance with Section 125.0.1 of the Zoning Regulations. The property is zoned "NT" (New Town - Open Space) and is subject to the Downtown Columbia Design Guidelines pertaining to environmental restoration. Its completion is a requirement of conditions imposed by the Alternative Compliance to CEPPA 15.

Location: The property (Tax Map 36, Grid 1, Parcel 81, Town Center Section 3, Area 3, Open Space Lot A-4, in the Fifth Election District of Howard County, Maryland) is accessed via Little Patuxent Parkway.

DPZ Recommendation: Approval, subject to complying with remaining minor comments from the Subdivision Review Committee (SRC) and any conditions by the Planning Board.
Vicinal Properties: Surrounding properties are zoned NT. They include:

North – Little Patuxent Parkway - across the street is the Century Plaza Office Center.

East – Exxon Gas Station at the intersection of Little Patuxent Parkway and Banneker Road.

South – Forested natural areas and BGE transmission lines.

West – The Wilde Lake BGE substation and a commercial service building.

Legal Notice: The property was properly posted and verified by DPZ.


History:

■ FDP-233, Columbia Town Center, Section 3 Area 3 - Final Development Plan outlining the development criteria for Open Space Lot 1. The plan was recorded on December 24, 1998.

■ FDP-DC-Crescent 1A - Final Development Plan outlining the criteria for the Crescent Neighborhood. Through this FDP and amendments the land for restoration was moved to alternate locations. The plan was recorded on February 24, 2017.


Analysis:

Site Improvements – The existing stream channel has widened and the banks have been downcut due to increased runoff and concentrated stormwater. The proposed restoration includes approximately 500 linear feet of stream channel restoration, 2 acres of forest restoration, and approximately 1 acre of reforestation. The site restoration will include the installation of low flow cobble riffles and cascades to increase the surface area to stream flow volume and provide efficient water movement. The boulder banks and deposits of large wood debris provide stream bank erosion protection, as well as additional wildlife habitat.

Setbacks – The proposed development complies with all setback requirements.

Storm Water Management (SWM) - Storm water management is not required for stream and wetland restoration.

Environmental Considerations - The restoration area contains 0.83 acres of forested stream area. The stream restoration measures will provide a more stable and efficient stream channel, with increased habitat for native aquatic wildlife.

Landscaping - Native vegetation will be planted along the edge of the stream channel and in the mulch access pathways used during the restoration efforts.

Forest Conservation - The proposed stream restoration is exempt from the forest conservation regulations.

Development Criteria - This plan complies with the Downtown Columbia Design Guidelines, Howard County Subdivision and Land Development Regulations, and the October 6, 2013 Howard County Zoning Regulations.
CEPPA’s – This environmental restoration SDP is subject to two CEPPA’s.

- CEPPA 7 – Which required a phasing schedule to implement environmental restoration, in accordance with the Merriweather and Crescent Environmental Enhancement Study. The phasing plan originally approved in 2012 was updated and approved in 2015 with FDP-DC-Crescent 1 to include this site for alternative compliance for a portion of the required Crescent environmental restoration land area.

- CEPPA 15 – Originally required all environmental work to be completed prior to issuing a building permit for the 1.3 millionth square foot of development. An alternative compliance was approved in 2015 with FDP-DC-Crescent 1 to complete restoration prior to issuing a building permit for the adjoining land area. A new alternative compliance for CEPPA 15 was approved in December 2016 to include this alternative site area and adjust timing for all environmental restoration, to be completed prior to issuing a use and occupancy permit for the first building in Crescent Neighborhood Area 3. It is anticipated the work proposed on the SDP will be completed with this timeframe.

Planning Board Criteria: The Site Development Plan complies with the two criteria requirements of Section 125.0.I of the October 6, 2013, Howard County Zoning Regulations.

1. The project conforms with the adopted Downtown Columbia Plan.

   The Symphony Stream Site 5 stream restoration project will only improve the current stream channel and surrounding forested area. The restoration efforts do not alter the open space layout as it pertains to the Downtown Columbia Plan. In accordance with the alternative compliance approved in December 1, 2016, for CEPPA 15, the restoration work must be completed prior to issuing the first use and occupancy permit for a building in Crescent Neighborhood Development Area 3.

2. The project conforms with the Downtown-Wide Design Guidelines pertaining to environmental restoration.

   Environmental features on the property will be improved with the restoration. The deteriorated stream channel will be restored and stabilized by improving the channel. The specific methods will create and restore non-tidal wetlands and vernal pool habitats. The improvements will also reconnect the damaged stream with the adjacent wooded riparian zone. Native tree and shrub plantings surrounding the stream channel will enhance the forest areas that encompass the open space riparian corridor.

SRC Action: The SRC determined the final plan can be approved, subject to addressing minor drafting errors that must be corrected prior to DPZ signature approval.

Recommendation: The Department of Planning and Zoning recommends approval of Site Development Plan (SDP-15-061), subject to complying with SRC comments.

Valdis Lazdins, Director
Department of Planning and Zoning

Date: 3/2/17

Please note that this file is available for public review by appointment at the Department of Planning and Zoning’s public service counter, Monday through Friday, 8:00 a.m. to 5:00 p.m.
**SYMPHONY STREAM 5 (SS-5) STREAM RESTORATION**

**COLUMBIA TOWN CENTER, SECTION 3, AREA 3**

**LEGEND**

<table>
<thead>
<tr>
<th>EXISTING</th>
<th>PROPOSED</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAJOR CONTOUR</td>
<td>MAJOR CONTOUR</td>
</tr>
<tr>
<td>MINOR CONTOUR</td>
<td>MINOR CONTOUR</td>
</tr>
<tr>
<td>SANITARY SEWER</td>
<td>SANITARY SEWER</td>
</tr>
<tr>
<td>STORM DRAIN</td>
<td>STORM DRAIN</td>
</tr>
<tr>
<td>EROSION CONTROL</td>
<td>EROSION CONTROL</td>
</tr>
<tr>
<td>PROPERTY LINE</td>
<td>PROPERTY LINE</td>
</tr>
<tr>
<td>BUILDINGS</td>
<td>BUILDINGS</td>
</tr>
<tr>
<td>UTILITY EASEMENT</td>
<td>UTILITY EASEMENT</td>
</tr>
<tr>
<td>EDGE OF PARKWAY</td>
<td>EDGE OF PARKWAY</td>
</tr>
<tr>
<td>CONCRETE CURB</td>
<td>CONCRETE CURB</td>
</tr>
<tr>
<td>TOPOGRAPHIC</td>
<td>TOPOGRAPHIC</td>
</tr>
<tr>
<td>EXISTING 15' YEAR FLOODPLANE</td>
<td>EXISTING 15' YEAR FLOODPLANE</td>
</tr>
<tr>
<td>TREE LINE</td>
<td>TREE LINE</td>
</tr>
<tr>
<td>SOIL-ACQUISITION</td>
<td>SOIL-ACQUISITION</td>
</tr>
<tr>
<td>WETLAND BUFFER</td>
<td>WETLAND BUFFER</td>
</tr>
<tr>
<td>WATERS OF THE US</td>
<td>WATERS OF THE US</td>
</tr>
<tr>
<td>USE ST STREAM BUFFER</td>
<td>USE ST STREAM BUFFER</td>
</tr>
<tr>
<td>MULTI-USE PATH</td>
<td>MULTI-USE PATH</td>
</tr>
<tr>
<td>15-24.9% SLOPES</td>
<td>15-24.9% SLOPES</td>
</tr>
<tr>
<td>25% OR GREATER SLOPES</td>
<td>25% OR GREATER SLOPES</td>
</tr>
<tr>
<td>TREES</td>
<td>TREES</td>
</tr>
<tr>
<td>TREE WITH DBH &gt; 30&quot;</td>
<td>TREE WITH DBH &gt; 30&quot;</td>
</tr>
<tr>
<td>TRANSVERSE POINT</td>
<td>TRANSVERSE POINT</td>
</tr>
<tr>
<td>SENSOR MACHINOLE</td>
<td>SENSOR MACHINOLE</td>
</tr>
<tr>
<td>LIGHT FOIL</td>
<td>LIGHT FOIL</td>
</tr>
<tr>
<td>ELECTRIC JUNCTION BOX</td>
<td>ELECTRIC JUNCTION BOX</td>
</tr>
<tr>
<td>STORMDRainer YARD INLET</td>
<td>STORMDRainer YARD INLET</td>
</tr>
<tr>
<td>STORMDRainer CATCH BASIN</td>
<td>STORMDRainer CATCH BASIN</td>
</tr>
<tr>
<td>TELEGRAPH HANGAR</td>
<td>TELEGRAPH HANGAR</td>
</tr>
<tr>
<td>FLIGHT DECK</td>
<td>FLIGHT DECK</td>
</tr>
<tr>
<td>SAND BAG DIKES</td>
<td>SAND BAG DIKES</td>
</tr>
</tbody>
</table>

**SITE ANALYSIS DATA CHART**

**SITE INFORMATION**

- **Lot/PARCEL#**: 35-36 5-15 #605602
- **CONTRACTOR**: GUTSHICK, LITTLE AND WEBER
- **DATE**: DECEMBER 2015

**MISS UTILITY**

Call "MISS UTILITY" at 1-(800)-257-7777, 48 hours prior to the start of work. The excavator must notify all public utility companies with underground facilities in the area of the proposed excavation and have those facilities located by the utility companies prior to commencing excavation.

**DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD**

**CERTIFICATION**

I HEREBY CERTIFY THAT THESE DOCUMENTS PREPARED BY GUTSHICK, LITTLE AND WEBER DATED DECEMBER 2015.

**MISS UTILITY**

Call "MISS UTILITY" at 1-(800)-257-7777, 48 hours prior to the start of work. The excavator must notify all public utility companies with underground facilities in the area of the proposed excavation and have those facilities located by the utility companies prior to commencing excavation.

**DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD**

**CERTIFICATION**

I HEREBY CERTIFY THAT THESE DOCUMENTS PREPARED BY GUTSHICK, LITTLE AND WEBER DATED DECEMBER 2015.

**MISS UTILITY**

Call "MISS UTILITY" at 1-(800)-257-7777, 48 hours prior to the start of work. The excavator must notify all public utility companies with underground facilities in the area of the proposed excavation and have those facilities located by the utility companies prior to commencing excavation.

**DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD**

**CERTIFICATION**

I HEREBY CERTIFY THAT THESE DOCUMENTS PREPARED BY GUTSHICK, LITTLE AND WEBER DATED DECEMBER 2015.

**MISS UTILITY**

Call "MISS UTILITY" at 1-(800)-257-7777, 48 hours prior to the start of work. The excavator must notify all public utility companies with underground facilities in the area of the proposed excavation and have those facilities located by the utility companies prior to commencing excavation.
SYMPHONY STREAM
SITE 5 (SS-S5)
RESTORATION
EROSION & SEDIMENT CONTROL PLAN
HOWARD COUNTY, MD
TAX MAP NO. 35,36
PARCEL #13689
L. 5289 F. 330

NOTE: SEE EX CONDITIONS SHEET FOR SOILS AND SLOPE INFO
INSTREAM LARGE WOODY DEBRIS (LWD) LARGE WOODY DEBRIS BUNDLE

NOTE:
1. INSTALL IN-STREAM LARGE WOODY DEBRIS, TWO FOR POOL AT LOCATIONS
   AS SHOWN ON PROPOSED CONDITIONS PLAN.
2. PARTIALLY BURY ON-SITE LWD INTO THE STREAM BANK APPROXIMATELY 1/3 LENGTH
   BURIED INTO THE STREAM BANK WITH A MINIMUM 1' OF COVER.

INSTREAM LARGE WOODY DEBRIS (LWD) CROSS SECTION

APPROX 3/4 LENGTH OF LWD BUNDLE TO BE BURIED INTO STREAM BANK WITH A MINIMUM 1' OF COVER.

INSTREAM LARGE WOODY DEBRIS (LWD) PLAN VIEW - TYPICAL

CROSS SECTION - STA 0+00 TO 1+28.8

COBBLE RIFFLE

CROSS SECTION - STA 1+69.2 TO 2+41.1

COBBLE RIFFLE

CROSS SECTION - STA 2+77 TO END

CASCADE CENTERLINE PROFILE

NOTE: FOR WIDTH AND DEPTHS SEE TYPICAL SECTIONS ON THIS SHEET.

CASCADE CREST

SECTION A-A'

CASCADE GLIDE

SECTION B-B'

COBBLE TAILOUT

FOOTER BOULDER

CASCADE BOULDER

TIE OUT BOULDER

A

C'-B'

A-B'

C-'

TIE OUT BOULDER

NOTE:
1. GAPS BETWEEN BOULDERS SHALL BE CHINKED WITH COBBLE
2. TYPICALLY, CASCADE BOULDER A-AXIS WILL BE ORIENTED IN DIRECTION OF FLOW, FOOTER BOULDER A-AXIS WILL BE ORIENTED PERPENDICULAR TO FLOW.
3. SEE SPECIFICATIONS FOR COBBLE SIZE AND DEPTH

SYMPHONY STREAM SITE 5 (SS-S5) RESTORATION

CELL-20.05 SH KFT MT

REUSE OF DOCUMENTS: This document contains images and designs incorporated herein, as an instrument of professional services, is the property of Biohabitats, Inc. and is not to be used in whole or in part, for any other project without the written authorization of Biohabitats, Inc.
COBBLE RIFFLE NOTES:
1. IN AREAS OF CUT, STREAM CHANNEL FILL MATERIAL UNDER RIFFLE IS NOT NEEDED. IN AREAS OF FILL, EXISTING STREAM CHANNEL, TO BE FILLED IN 6' LIFTS, TO EXISTION SPECIFIED ON PROFILE INDEX, RIFFLE IS NOT NEEDED. IN AREAS OF FILL, EXISTING STREAM CHANNEL FILL MATERIAL UNDER RIFFLE IS NOT NEEDED.
2. TIE-OUT BOULDER SHALL EXTEND 
   INTO THE CORNER NODES DS-R & DS-L A MINIMUM OF ONE BOULDER LENGTH (A-AXIS) INTO EXISTING GRADE CONTROL LOG. IN AREAS OF FILL OR UTILITIES, TIE-OUT BOULDERS MAY BE ELIMINATED OR ADJUSTED AT DIRECTION OF ENGINEER.
3. SEE GRADING PLAN FOR SUBSTRATE MATERIAL LOCATIONS AND ELEVATIONS. SPECIFY FOOTPRINTS OF RIFFLE, GLIDE LIMITS ARE SHOWN ON PROFILE.
4. LARGE WOODY DEBRIS SHALL BE INSTALLED IN POOLS AS SHOWN ON PROFILE, OR AS DIRECTED BY THE ENGINEER.
5. E.S.L. = WATER SURFACE ELEVATION

BOULDER RIFFLE - COBBLE RIFFLE

PROFILE INDEX

COBBLE RIFFLE PLAN VIEW

COBBLE RIFFLE CROSS SECTION

COBBLE RIFFLE PROFILE

COBBLE RIFFLE PROFILE

COBBLE RIFFLE CROSS SECTION

BOULDER RIFFLE CROSS SECTION

BOULDER RIFFLE CROSS SECTION

OUTFALL APRON AT STA 0+00

BOULDER EXTENDS TO BOTTOM OF POOL

NOTE: INCLINATION OF WALL FROM HORIZONTAL SHALL BE 1H:2V

BOULDER TOE PROTECTION

OUTFALL APRON AT STA 0+00

REUSE OF DOCUMENTS: This document and the ideas and designs incorporated herein, as an instrument of Professional Services, is the property of Biohabitats, Inc. and is not to be used in whole or in part, for any other project without the written authorization of Biohabitats, Inc.
MUST NOT BE DISTURBED DURING MARCH 1 TO MAY 31. THIS PROJECT IS SUBJECT TO THE FOLLOWING APPROVALS:

A. PRIOR TO START OF EARTH DISTURBANCE,
B. PRIOR TO THE START OF ANOTHER PHASE OF CONSTRUCTION OR OPENING OF ANOTHER GRADING UNIT,
C. PRIOR TO COMMENCING WORK AT (410)-313-1880. WORK MAY NOT COMMENCE UNTIL THE PERMITTEE OR THE RESPONSIBLE PE HAVE MET ON SITE WITH THE SEDIMENT AND EROSION CONTROL INSPECTOR TO REVIEW THE APPROVED PLANS.

SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (410)-313-1855.

AREA DISTURBED

0.00     ACRES
0.83    ACRES

7. CONTRACTOR SHALL INSTALL MULCH ACCESS PATHWAYS, BLAZE ORANGE FENCE, AND TREE PROTECTION AREAS AS SHOWN ON THE PLANS.
8. ALL WETLAND AND IN STREAM WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE PUMP AROUND CRITERIA.
9. CONTRACTOR SHALL CAUTION THE TRUCK DRIVERS TO TAKE EXTRA PRECAUTION WHILE DRIVING ON ALL TEMPORARY ACCESS WAYS.
10. CONTRACTOR SHALL STAY WITHIN THE LIMIT OF DISTURBANCE AS SHOWN ON THE PLANS AND MINIMIZE FOR SOIL EROSION AND SEDIMENT CONTROL FOR TOPSOIL (SEC. B-4-2), PERMANENT SEEDING (SEC. B-4-5), TEMPORARY SEEDING (SEC. B-4-4) AND MULCHING (SEC. B-4-3).
11. ANY SEDIMENT CONTROL PRACTICE THAT IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
12. CONTRACTOR SHALL INSTALL MULCH ACCESS PATHWAYS, BLAZE ORANGE FENCE, AND TREE PROTECTION AREAS AS SHOWN ON THE PLANS.
13. TOPSOIL SHALL BE STOCKPILED AND PRESERVED ON-SITE FOR REDISTRIBUTION ONTO FINAL GRADE.
14. CONTRACTOR SHALL INSTALL MULCH ACCESS PATHWAYS, BLAZE ORANGE FENCE, AND TREE PROTECTION AREAS AS SHOWN ON THE PLANS.
15. MATERIALS FOR PUMPING STATION AND FILTER BAG SHALL BE LOCATED ON SITE.
16. CONTRACTOR SHALL INSTALL A CLOTH FILTER AND FILTER BAG REMOVAL PRACTICE AS SHOWN ON THE PLANS.
17. INSTALL SEDIMENT AND EROSION CONTROL DEVICES SHOWN ON THE PLANS.
18. CONTRACTOR SHALL INSTALL MULCH ACCESS PATHWAYS, BLAZE ORANGE FENCE, AND TREE PROTECTION AREAS AS SHOWN ON THE PLANS.
19. PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL ELEVATION.
20. ANY SEDIMENT CONTROL PRACTICE THAT IS DISTURBED BY GRADING ACTIVITY MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
21. CONTRACTOR SHALL INSTALL MULCH ACCESS PATHWAYS, BLAZE ORANGE FENCE, AND TREE PROTECTION AREAS AS SHOWN ON THE PLANS.
22. DEWATER WORK AREA BEFORE BEGINNING WORK. PUMP AROUND SHOULD OCCUR UPSTREAM TO DOWNSTREAM. SANDBAG DIKES DISPERSOR. WATER FROM WORK AREA SHOULD BE PUMPED TO A SEDIMENT FILTERING MEASURE SUCH AS A FILTER BAG AND SHOULDBE SHOWN DRAINING INTO THE CHANNEL BELOW THE DOWNSTREAM SANDBAG DIKE.
23. CONSTRUCTION WORK SHALL BEGIN DOWNSTREAM AND PROCEED UPSTREAM ALONG THE MAINSTEM. THE OUTFALL TRIBUTARY USE I AND IP MARCH 1 - JUNE 15
24. CONTRACTOR SHALL INSTALL MULCH ACCESS PATHWAYS, BLAZE ORANGE FENCE, AND TREE PROTECTION AREAS AS SHOWN ON THE PLANS.
25. THE FOOTPRINT OF THE STOCKPILE MUST BE SIZED TO ACCOMMODATE THE ANTICIPATED VOLUME OF MATERIAL AND BASED ON A SIDE SLOPES, OR 40 FEET FOR 4:1 SLOPES, BENCHING MUST BE PROVIDED IN ACCORDANCE WITH SECTION B-3 LAND GRADING.
26. IF THE STOCKPILE IS LOCATED ON AN IMPERVIOUS SURFACE, A LINER SHOULD BE PROVIDED BELOW THE STOCKPILE TO FACILITATE RESTORATION. STOCKPILES CONTAINING CONTAMINATED MATERIAL MUST BE COVERED WITH IMPERMEABLE SHEETING.
27. WHERE RUNOFF CONCENTRATES ALONG THE TOE OF THE STOCKPILE FILL, AN APPROPRIATE EROSION/SEDIMENT CONTROL PRACTICE THAT IS DISTURBED BY GRADING ACTIVITY MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
28. CONTRACTOR SHALL INSTALL MULCH ACCESS PATHWAYS, BLAZE ORANGE FENCE, AND TREE PROTECTION AREAS AS SHOWN ON THE PLANS.
29. SITE SPECIMENS FROM THE INVENTORY WERE DISTURBED AT A TIME. WORK MAY PROCEED TO A SUBSEQUENT GRADING UNIT WHEN AT LEAST 50 PERCENT OF THE DISTURBED AREA IN THE AREA DISTURBED CUMULATIVELY MAY BE DISTURBED AT A GIVEN TIME.
30. DEWATER WORK AREA BEFORE BEGINNING WORK. PUMP AROUND SHOULD OCCUR UPSTREAM TO DOWNSTREAM. SANDBAG DIKES DISPERSOR. WATER FROM WORK AREA SHOULD BE PUMPED TO A SEDIMENT FILTERING MEASURE SUCH AS A FILTER BAG AND SHOULDBE SHOWN DRAINING INTO THE CHANNEL BELOW THE DOWNSTREAM SANDBAG DIKE.
31. CONSTRUCTION WORK SHALL BEGIN DOWNSTREAM AND PROCEED UPSTREAM ALONG THE MAINSTEM. THE OUTFALL TRIBUTARY USE III AND IIIP OCTOBER 1 - APRIL 30
32. IF THE STOCKPILE IS LOCATED ON AN IMPERVIOUS SURFACE, A LINER SHOULD BE PROVIDED BELOW THE STOCKPILE TO FACILITATE RESTORATION. STOCKPILES CONTAINING CONTAMINATED MATERIAL MUST BE COVERED WITH IMPERMEABLE SHEETING.
33. STOCKPILES CONTAINING CONTAMINATED MATERIAL MUST BE COVERED WITH IMPERMEABLE SHEETING.
NOTES:
1. PROTECTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
2. BOUNDARIES OF PROTECTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICES.
3. DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

ANCHOR POSTS MUST BE INSTALLED TO A DEPTH OF NO LESS THAN 1/3 OF THE TOTAL HEIGHT OF POST.

USE 8” WIRE ‘U’ TO SECURE FENCE BOTTOM

BLAZE ORANGE PLASTIC MESH

HIGHLY VISIBLE FLAGGING

MAXIMUM 8 FEET

ANCHOR POSTS SHOULD BE MINIMUM 2” STEEL ‘U’ CHANNEL OR 2” X 2” TIMBER, 6’ IN LENGTH

NOT TO SCALE
ANNUAL RYEGRASS/FOXTAIL MILLET

ANNUAL RYEGRASS 40 5/1 - 5/15 8/1 - 10/15 0.5

FOXTAIL MILLET 30 6/20 - 7/31

DEERTONGUE CREEPING RED FESCUE VIRGINIA WILD RYE


THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT. HOWARD SCD DATE 13020.05

SYMPHONY STREAM SITE 5 (SS-S5) RESTORATION PROJECT NO. SS-P505 SCALE 1″=20′

EROSION AND SEDIMENT CONTROL DETAILS

Erosion and sediment control shall be implemented in accordance with this plan to minimize the potential for the discharge of excess sediments into the receiving water bodies. The plan describes the requirements of the project for erosion and sediment control措施

This plan covers the following topics:

1. Site description and project boundaries
2. Soil erosion and sediment control measures
3. Erosion control practices
4. Sediment control practices
5. Monitoring and maintenance

Site description and project boundaries:

The project site is located within the Symphony Stream watershed, specifically within the Site 5 (SS-S5) area. The project boundaries are defined by the project area's boundaries as shown on the plan.

Soil erosion and sediment control measures:

The project will implement a combination of erosion and sediment control measures, including:

- Topographic modification to minimize the risk of erosion
- Use of erosion control blankets to protect slopes during construction
- Use of sediment basins to capture and settle sediment
- Use of silt fences to control sediment movement

Erosion control practices:

- Erosion control measures shall be implemented during all phases of construction, including:
  - Preclearing
  - Topsoil stripping
  - Embankment and slope protection

Sediment control practices:

- Sediment control measures shall be implemented during all phases of construction, including:
  - Sediment basins
  - Silt fences
  - Sediment collection systems

Monitoring and maintenance:

- Monitoring and maintenance of erosion and sediment control measures shall be performed as required by the project's plan.
- Maintenance plans shall be developed to ensure the continued effectiveness of the erosion and sediment control measures.

This plan is subject to revision as required by the project's needs and the project's plan.
1. Height of cage shall be 4-feet (min.).
2. Cage shall be fastened to stake with two (min.) 11-inch releasable cable ties (one at top and one 6" (min.) above the ground.
3. Do not damage tree during installation.
4. Deer bark protectors (item #bg48, by A.M. Leonard, or equal) may be substituted for trees greater than 3/4" caliper. All other substitutions must be approved by forest ecologist.
5. Cages to be removed at direction of forest ecologist.
6. Ensure cage is secure to ground to prevent uplift by deer.

**Planting Details and Schedules**

**PLANT COMPOSITE**

**Zone 1 - Floodplain Forest Reforestation**

**PLANT SPACING - RANDOM**

**NOTES:**
1. Height of cage shall be 4-feet (min.).
2. Cage shall be fastened to stake with two (min.) 11-inch releasable cable ties (one at top and one 6" (min.) above the ground.
3. Do not damage tree during installation.
4. Deer bark protectors (item #bg48, by A.M. Leonard, or equal) may be substituted for trees greater than 3/4" caliper. All other substitutions must be approved by forest ecologist.
5. Cages to be removed at direction of forest ecologist.
6. Ensure cage is secure to ground to prevent uplift by deer.