Meg Kelly
Senior Manager, Space to Grow
Healthy Schools Campaign

Managing Partners

Provide/direct school support
Community engagement
Facilitate partnership

openlands
conserving nature for life

HEALTHY SCHOOLS
CAMPAIGN

Capital Partners

Provide funding, expertise + leadership
Equal split of capital
Commitment to 34 schoolyards in this phase

Chicago Public Schools

Department of Water Management

Metropolitan Water Reclamation District of Greater Chicago

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Program Goal

Chicago's outdated schoolyards can be transformed into vibrant outdoor places that benefit students, communities, and the environment.

Health & Wellness

Outdoor Learning

Stormwater Management

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Health & Wellness

- Support Chicago Public Schools wellness, recess and Physical Education policies
- Address high childhood obesity rates
- Create access to green space and play areas

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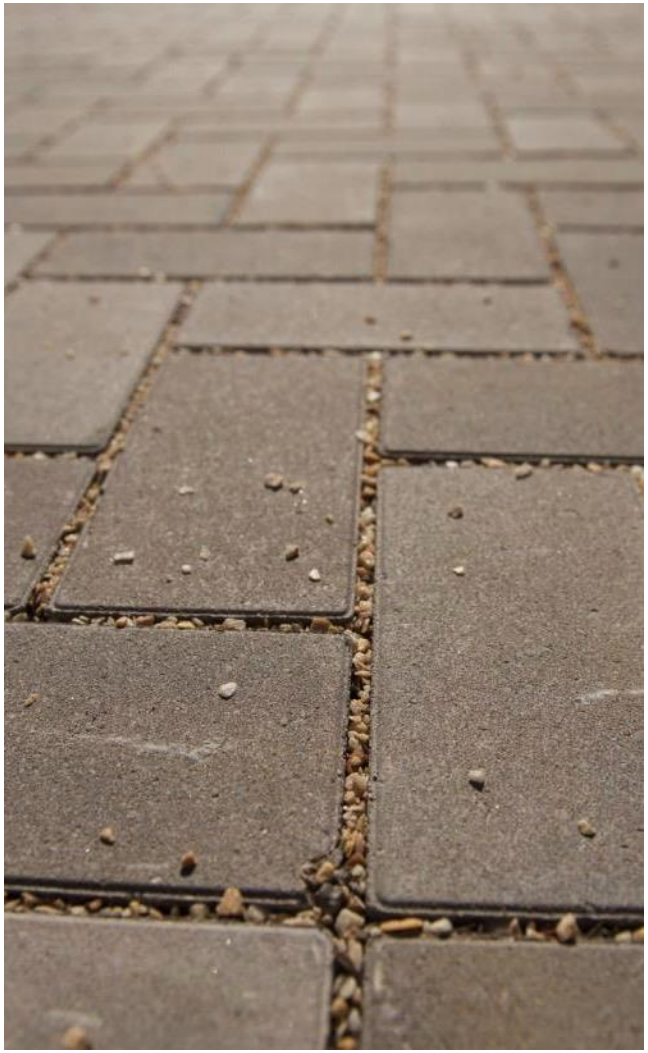
Outdoor Learning

- Spaces designed for hands-on activities
- Increased awareness of environmental issues
- Improved cognitive development
- Daily connection to nature

Stormwater Management

- Addressing flooding & pollution issues
- Capturing rain where it falls
- Engaging communities to use best practices



Engaging Communities

- Building strong community relationships
- Forming new partnerships
- Engaging parents
- Supporting the design, use & maintenance of schoolyards

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Grissom

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SCHOOLYARDS

Grissom

Grissom Aerial

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John Watson
Civil Engineer in Stormwater
MWRDGC

Stormwater Goals

- Capture as much runoff as possible
- Store, and infiltrate
- Release at a reduced rate of 0.15 cfs/ac
- 2.25” capture required, 3” goal, from all impervious areas of new construction

Design Retention Capacity

- 133,393 gal. total DRC
  - The storage volume below the underdrain
  - The volume of runoff that would be infiltrated from the storage areas during a 6-hour period
    - Underlying soil infiltration rate of 0.65 in/hr, pretty good for around here
  - 50% of the total detention volume.

MWRDGC

Stormwater Retention Calculations

Appendix ____

KEY
user input
calculated

Name of Project: Wadsworth

Address: 6650 S Elliss Ave, Chicago, IL

Bioretention Area #1 (Permeable Pavement)

					NOTES
6	Design soil infiltration rate	i	0.65	in/hr	actually giv
7	Elevation of bottom of BMP (the infiltration surface) IF there is no underdrain, OR the lowest underdrain invert elevation	$ELEV_{BMP}$	assume separation OK by engineer	feet	
8	Groundwater elevation	$ELEV_{GW}$	separation OK by engineer	feet	
9	Depth to seasonal groundwater (Must be 2 feet or greater, or 3.5 feet or greater if draining to combined sewer)	D_{GW}	OK	feet	
	Section 3 BMP Specifications				
10	Dimensions of the bioinfiltration facility (length, width, or area)	L		feet	75' at top a
		W		feet	110 wide, 1
		A_{BMP}	8,655	square feet	taken from
11	Depth of prepared soil	D_1	0.0	feet	
12	Prepared soil porosity (0.25 maximum unless detailed materials report provided)	P_1	0.00	[unitless]	
13	Depth of underlying aggregate (optional)	D_2	2.8	feet	taken from
14	Aggregate porosity (0.38 maximum unless detailed materials report provided)	P_2	0.38	[unitless]	taken from
15	Surface storage volume (provide supporting calculations, max depth 12 inches) (=0 for projects with no surface storage (CPS))	V_{AIR}	0	cubic feet	
16	Total media void volume = $A_{BMP} * [(D_1 * P_1) + (D_2 * P_2)]$	V_{SOIL}	9,209	cubic feet	
	DRC Volume Including Infiltration				
20	Depth of Prepared Soil Below Drain (if drained, if not drained, total depth of prepared soil)	D_3	0.00	feet	
21	Soil Void Volume Below Drain = $(A_{BMP}*D_3*P_1)$	V_3	0	cubic feet	
22	Depth of Prepared Aggregate Below Drain (if drained, if not drained, total depth of prepared aggregate) (must be less than or equal to total depth, D_1+D_2)	D_4	0.50	feet	
23	Aggregate Void Volume Below Drain = $(A_{BMP}*D_4*P_2)$	V_4	1,644	cubic feet	
24	6-hr infiltrated volume = $(i*A_{BMP}*5[hrs]/12[in/ft])$	V_5	2,813	cubic feet	
25	50% of Volume Above Drain = 0.5*(VSOIL-V4)	V_6	3,782	cubic feet	
26	Total Retained and Infiltration Volume $(V_3+V_4+V_5+V_6+V_{AIR})$	V_{DRC}	8,240	cubic feet	
27	V_{DRC} = Above [in Gallons]	V_{DRC}	61,632	gallons	

Please reproduce and add for multiple bioretention areas, 7 additional provided below

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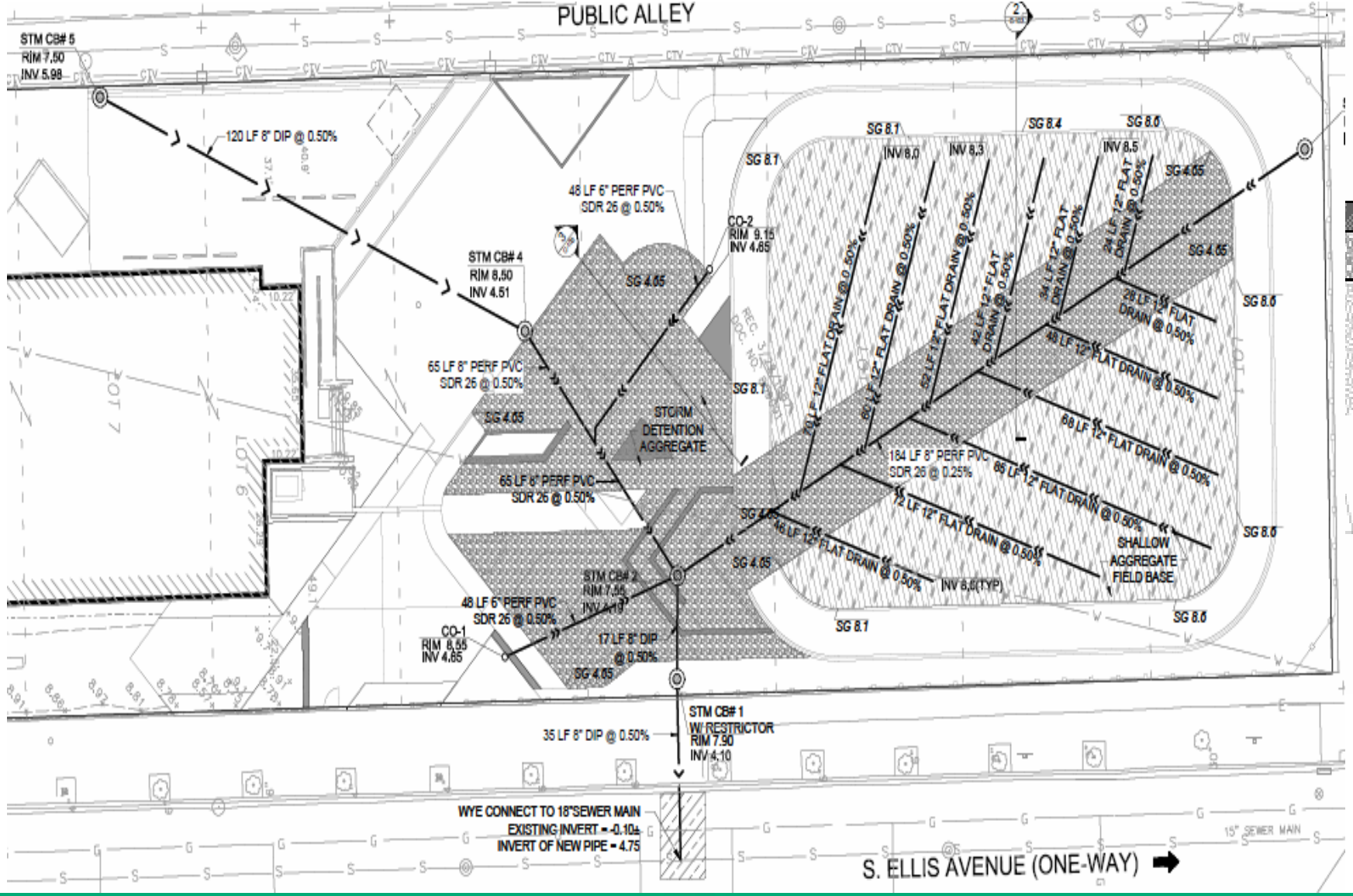

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SCHOOLYARDS

Wadsworth

GREENING CHICAGO
SPACE TO GROW
SCHOOLYARDS

Wadsworth

GREENING CHICAGO
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SCHOOLYARDS

Native and Edible Gardens

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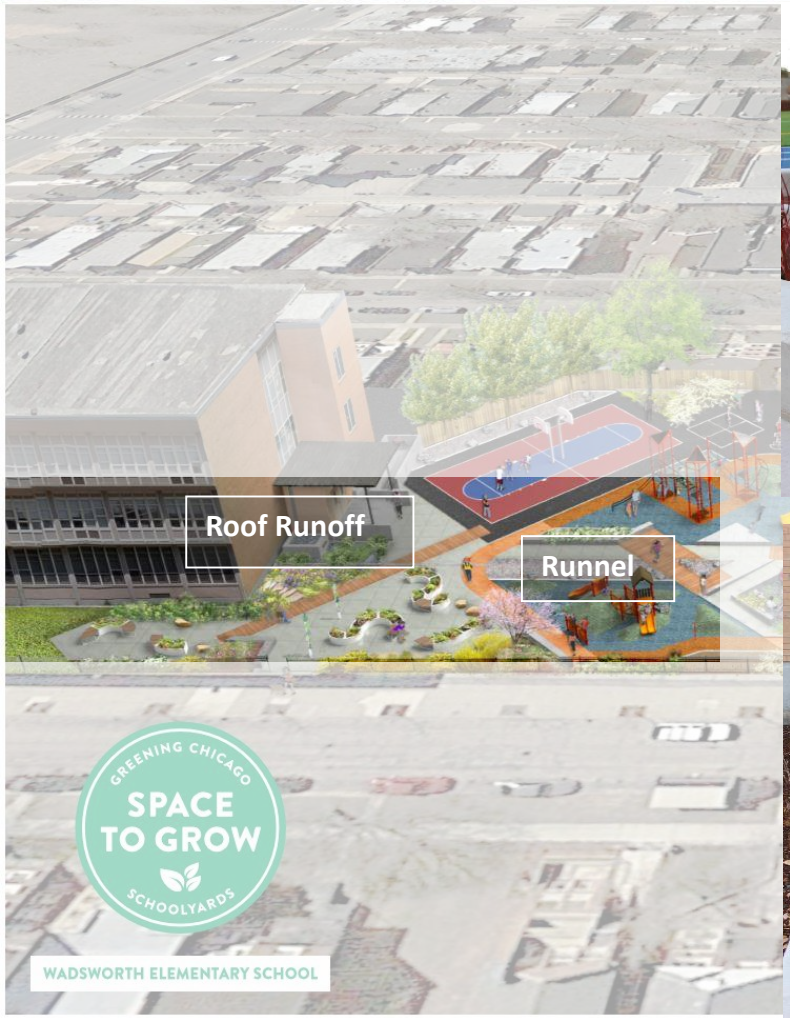

Roof Runoff and Runnel

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From roof
to cistern
to runnel

Basketball Court and Play Surface

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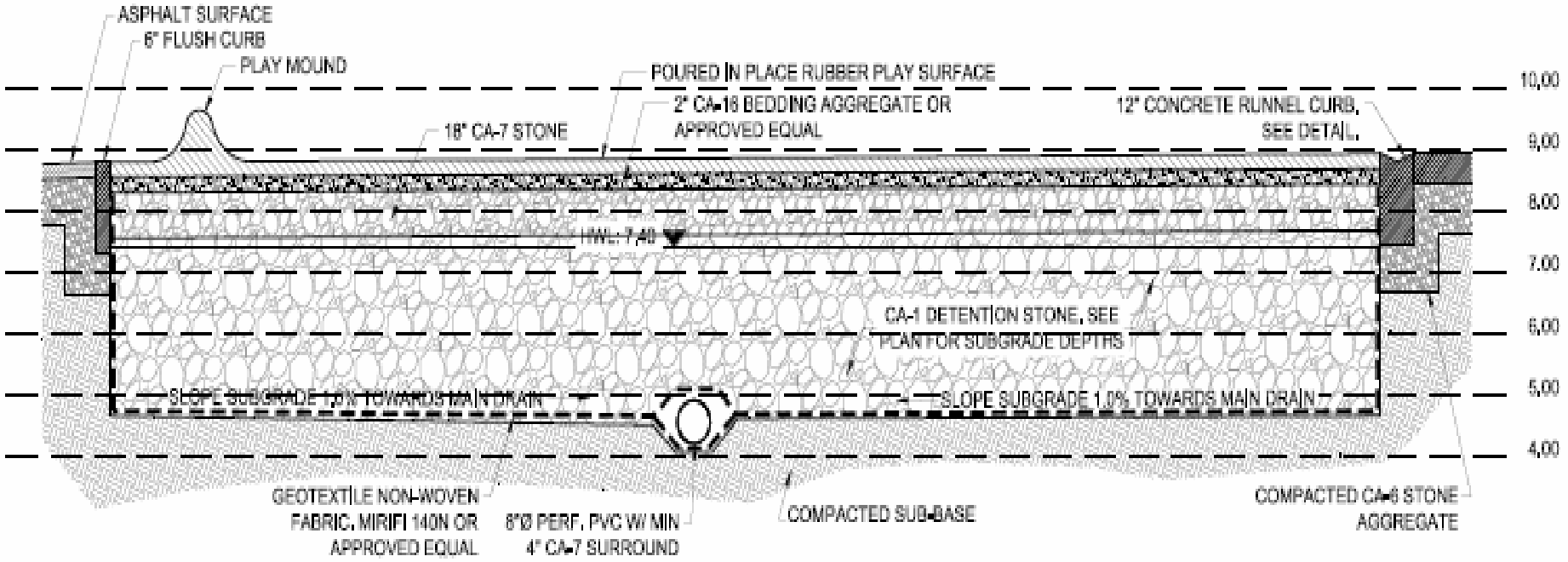

3 POURED IN PLACE SURFACE CROSS SECTION

1:5 HORIZ; 1:2 VERT

Play Surface Cross Section

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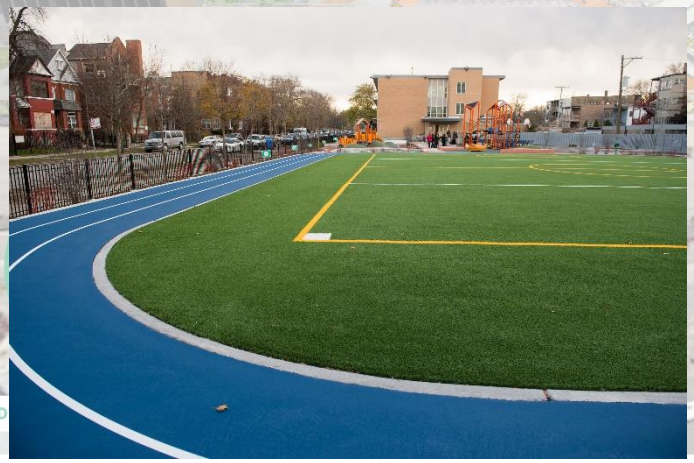

Turf Field and Track

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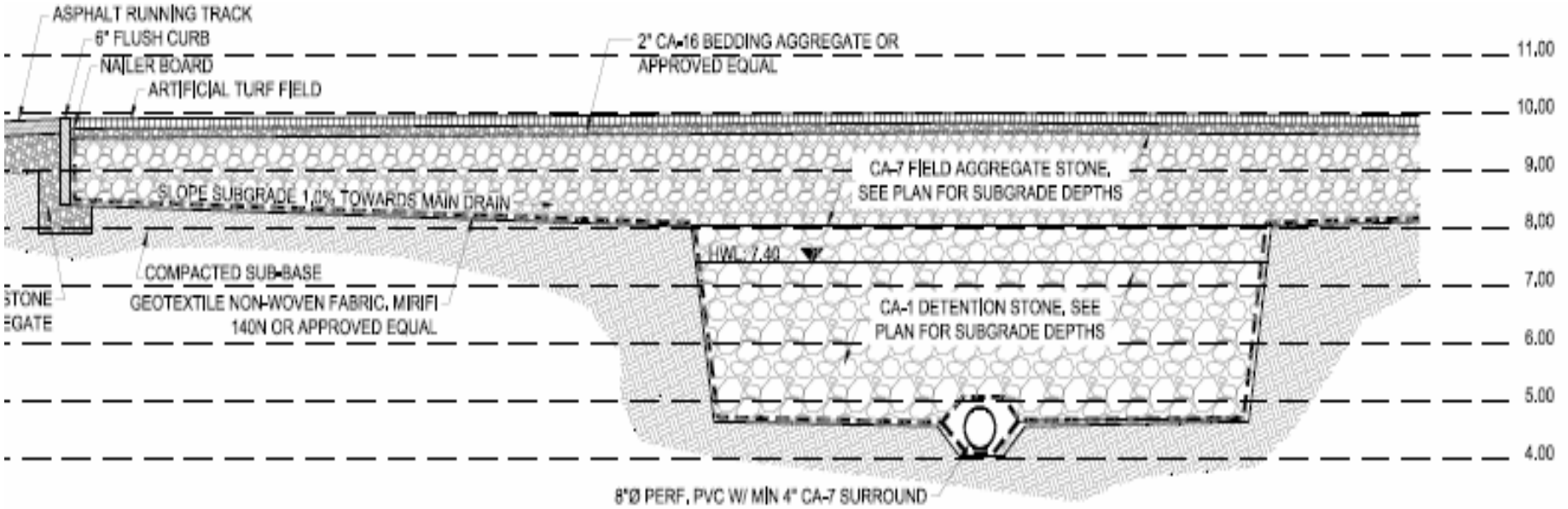

2 FIELD TURF CROSS SECTION
1:5 HORIZ; 1:2 VERT

Turf Field Cross Section

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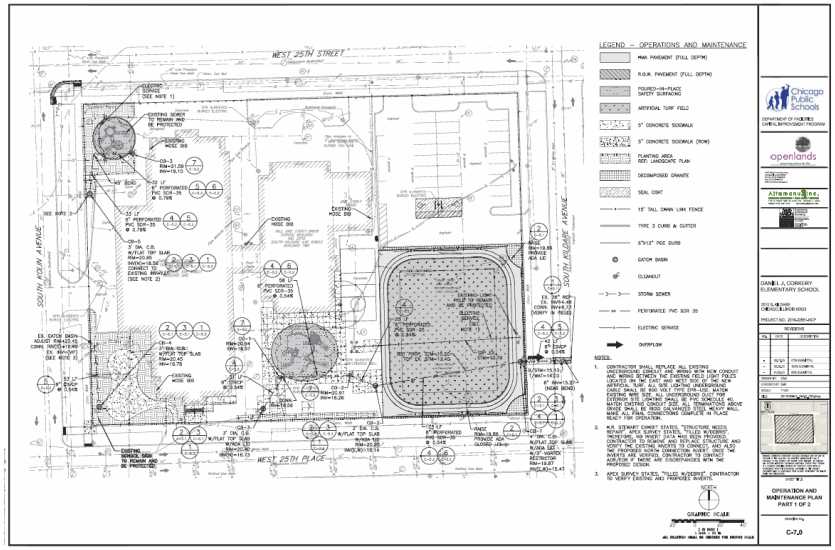
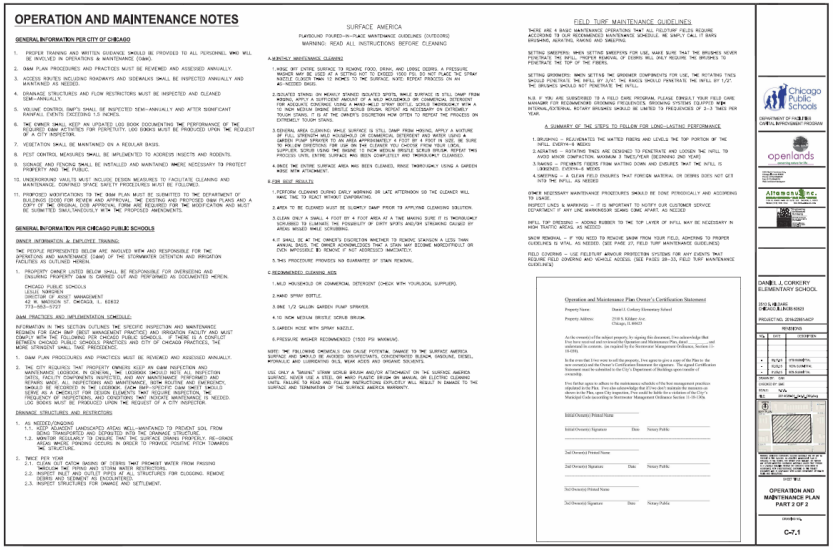
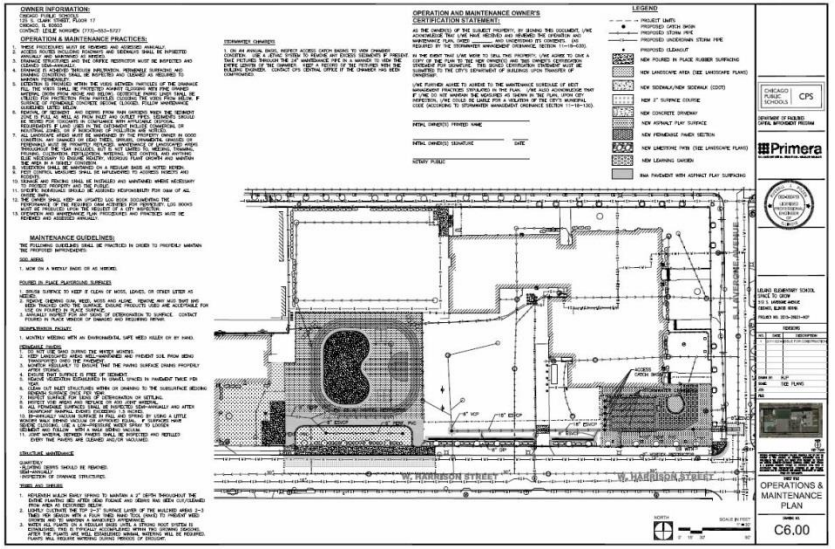
Ted Haffner
Landscape Architect
Openlands



PROBLEM

- O&M procedures based on AOR experience leading to varied and variable O&M tasks





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City of Chicago

Stormwater Management Ordinance Manual

January 2016

Dept. of Water Management
Thomas H. Powers, PE
Commissioner

City of Chicago
Rahm Emanuel
Mayor

A Guide to Stormwater Best Management Practices

Chicago's Water Agenda

City of Chicago
Richard M. Daley
Mayor

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SOLUTIONS

- Create a standardized plant list organized by hydrologic and exposure conditions
- Create a template for O&M procedures for CPS Architects of Record use
- Template is organized by intervention type to allow for flexible inclusion/exclusion based on specific site design and schoolyard program.

O&M TEMPLATE SCOPE ITEMS

- General Considerations
- Structure Maintenance
- Surface Maintenance
- Irrigation Systems
- Landscape Maintenance

Chicago Public Schools Space To Grow Program Maintenance Operations and Maintenance Spreadsheet

School	Report Title	Report Item #	Date Logged	Report Date	Maintenance Concern/Issue	Photo Reference Figure #	O&M Sheet Reference	Issue Resolved Date (CPS To Complete)
Grissom	160716_STG_Grissom_1	1	3/8/2016	7/18/2016	Gravel from pavers is loose across the schoolyard.	1	Permeable Pavement Routine Maintenance	
Grissom	160716_STG_Grissom_1	2	3/8/2016	7/18/2016	Remove Gum from playground poured rubber surfacing	2	Poured In Place Playground Surfaces, dashed item #2	
Grissom	160716_STG_Grissom_1	3	3/8/2016	7/18/2016	Remove Black fabric coming up below crushed stone pathway and adjust pathway to be flush with adjacent curb (tripping hazard)	3	N/A: Safety Issue	
Grissom	160716_STG_Grissom_1	4	3/8/2016	7/18/2016	Repair acrylic paint chipping on track	4, 5, 6	Acrylic surface not currently an item on sheet.	
Grissom	160716_STG_Grissom_1	5	3/8/2016	7/18/2016	Remove graffiti on the benches	7, 8		
Grissom	160716_STG_Grissom_1	6	3/8/2016	7/18/2016	Black scuff marks on swing poles	9		
Grissom	160716_STG_Grissom_1	7	3/8/2016	7/18/2016	Playground welcome sign is hung upside down	10	Operations and Maintenance Practices, dashed item #7	
Grissom	160716_STG_Grissom_1	8	4/14/2016	7/18/2016	The edges of the bioretention area are bare	11	Operations and Maintenance Practices, dashed item #5, Plant Maintenance Specifications 1.ii	
Grissom	160716_STG_Grissom_1	9	4/14/2016	7/18/2016	Graffiti/doodles on one of the TKC beds	12		
Grissom	160716_STG_Grissom_1	10	5/18/2016	7/18/2016	Remove exposed erosion control netting	13		
Grissom	160716_STG_Grissom_1	11	5/18/2016	7/18/2016	Adjust pavers at concrete to remove tripping hazard	14	N/A: Safety Issue	
Grissom	160716_STG_Grissom_1	12	5/18/2016	7/18/2016	Repair/patch hole in asphalt basketball court	15	N/A: Safety Issue	
Grissom	160716_STG_Grissom_1	13	5/18/2016	7/18/2016	Weed bioswales and plantng beds	16,17,18	Operations and Maintenance Practices, dashed item #5, Plant Maintenance Specifications 1.ii	
Grissom	160716_STG_Grissom_1	14	5/18/2016	7/18/2016	No water to exterior spiggot. STG confirmed line to outside is in working order from inside building.	19		

Figure 10: Playground welcome sign is hung upside down.
Reference: Spreadsheet Item 7

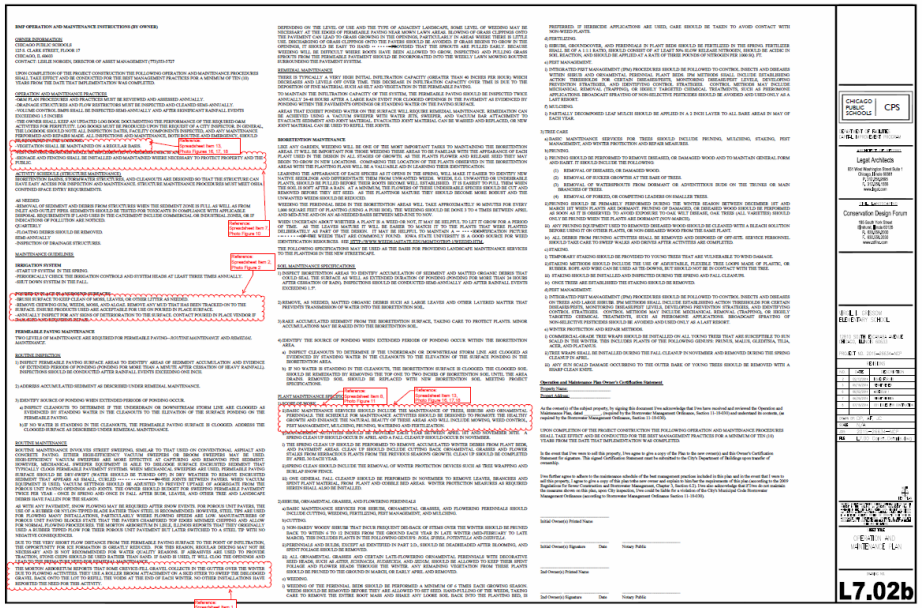

Figure 11: The edges of the bioretention area are bare.
Reference: Spreadsheet Item 8


Figure 12: Graffiti/doodles on one of the TKC beds.
Reference: Spreadsheet Item 9


Figure 13: Remove graffiti on the benches.
Reference: Spreadsheet Item 10


Figure 14: Adjust pavers at concrete to remove tripping hazard.
Reference: Spreadsheet Item 11


Figure 15: Repair/patch hole in asphalt basketball court
Reference: Spreadsheet Item 12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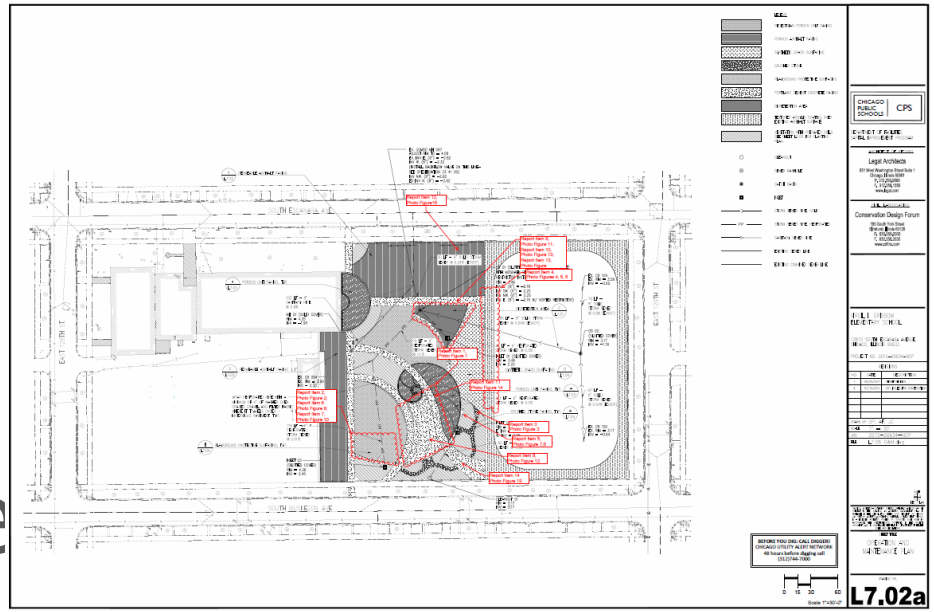
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