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Washington Gateway | Washington, DC

December 30, 2016 | C-106B

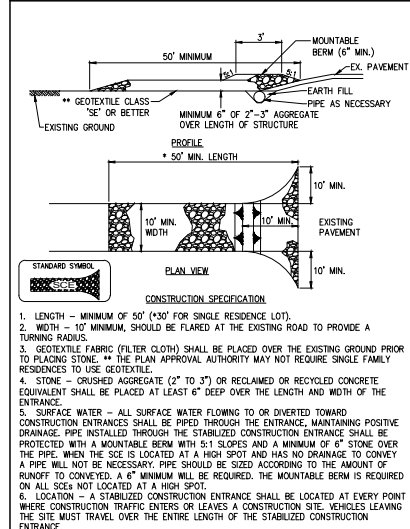


Grading Plan B



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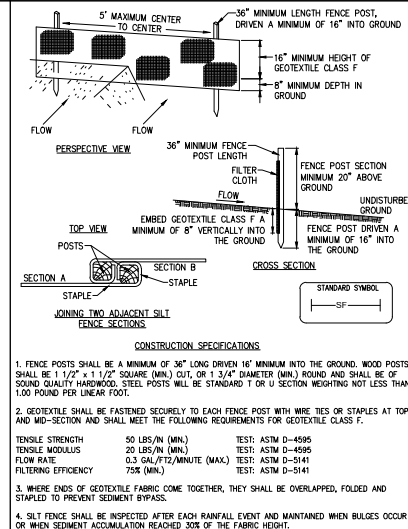
DETAIL 1 - STABILIZED CONSTRUCTION ENTRANCE



CONSTRUCTION SPECIFICATIONS
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.

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NATURAL RESOURCE CONSERVATION SERVICE

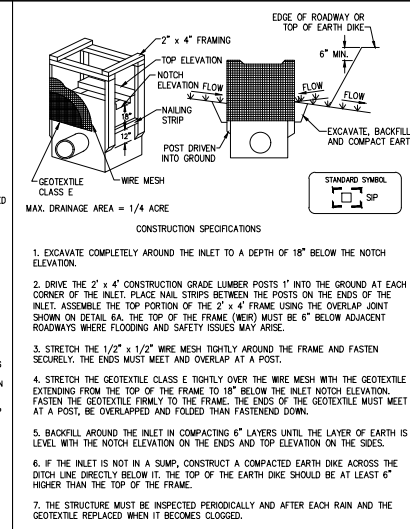
DETAIL 4 - SILT FENCE



CONSTRUCTION SPECIFICATIONS
1. FENCE POSTS SHALL BE A MINIMUM OF 3/4" LONG DRIVEN 16" MINIMUM INTO THE GROUND. WOOD POSTS SHALL BE 1 1/2" x 1 1/2" SQUARE (MIN.) OR 1 3/4" DIAMETER (MIN.) ROUND AND SHALL BE OF SOUND QUALITY HARDWOOD. STEEL POSTS WILL BE STANDARD T OR U SECTION WEIGHING NOT LESS THAN 1.00 POUND PER LINEAR FOOT.

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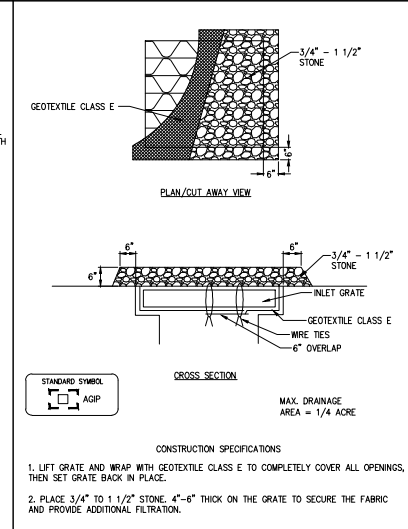
DETAIL 6A - STANDARD INLET PROTECTION



CONSTRUCTION SPECIFICATIONS
1. EXCAVATE COMPLETELY AROUND THE INLET TO A DEPTH OF 18" BELOW THE NOTCH ELEVATION.
2. DRIVE THE 2" x 4" CONSTRUCTION GRADE LUMBER POSTS 1" INTO THE GROUND AT EACH CORNER OF THE INLET. PLACE NAIL STRIPS BETWEEN THE POSTS ON THE ENDS OF THE INLET.

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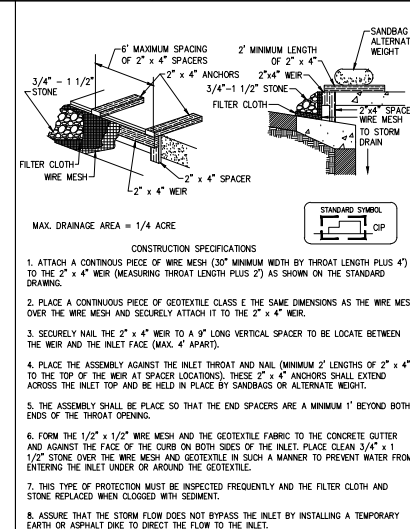
DETAIL 6B - AT GRADE INLET PROTECTION



CONSTRUCTION SPECIFICATIONS
1. LIFT GRATE AND WRAP WITH GEOTEXTILE CLASS E TO COMPLETELY COVER ALL OPENINGS. THEN SET GRATE BACK IN PLACE.
2. PLACE 3/4" x 1 1/2" STONE, 4" - 6" THICK ON THE GRATE TO SECURE THE FABRIC AND PROVIDE ADDITIONAL FILTRATION.

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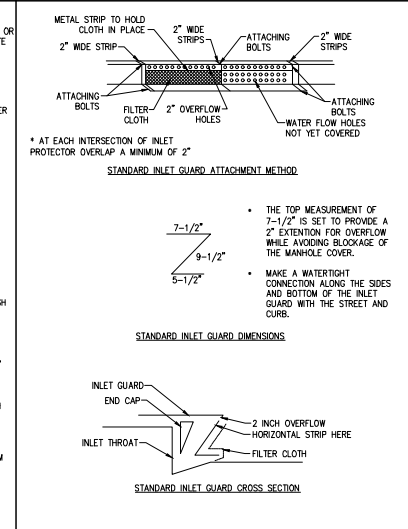
DETAIL 6C - CURB INLET PROTECTION (COG OR COS INLETS)



CONSTRUCTION SPECIFICATIONS
1. ATTACH A CONTINUOUS PIECE OF WIRE MESH (30" MINIMUM WIDTH BY THROAT LENGTH PLUS 4") TO THE 2" x 4" WIRE (MEASURING THROAT LENGTH PLUS 2") 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 SECURELY ATTACH IT TO THE 2" x 4" WIRE.

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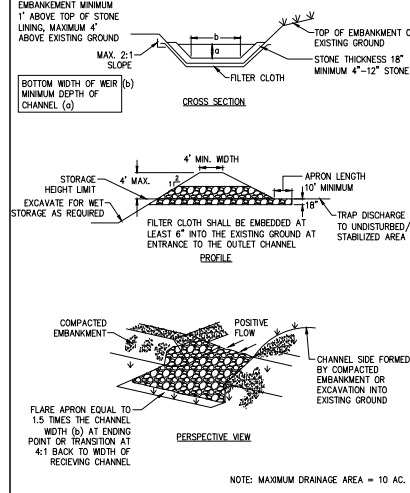
DETAIL 6E - AT GRADE INLET GUARD



CONSTRUCTION SPECIFICATIONS
1. ATTACH A CONTINUOUS PIECE OF WIRE MESH (30" MINIMUM WIDTH BY THROAT LENGTH PLUS 4") TO THE 2" x 4" WIRE (MEASURING THROAT LENGTH PLUS 2") 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 SECURELY ATTACH IT TO THE 2" x 4" WIRE.

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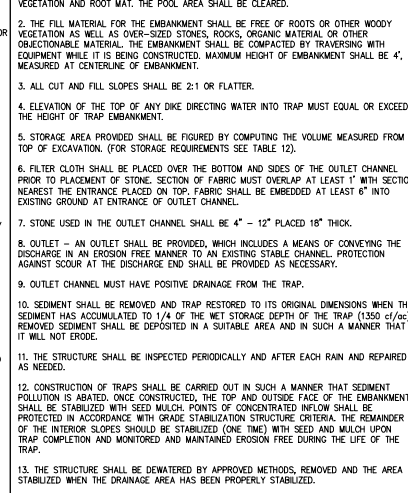
DETAIL 9 - EARTH DIKE



CONSTRUCTION SPECIFICATIONS
1. ALL TEMPORARY EARTH DIKES 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.

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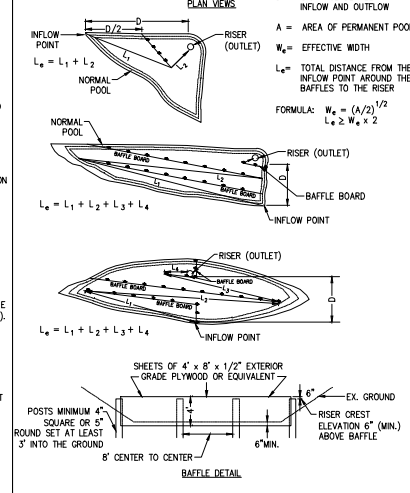
DETAIL 11 - PERIMETER DIKE / SWALE



CONSTRUCTION SPECIFICATIONS
1. ALL PERIMETER DIKE/SWALES SHALL HAVE AN 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.

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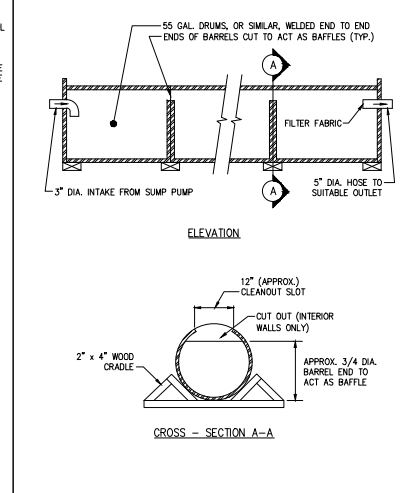
DETAIL 12 - PIPE OUTLET SEDIMENT TRAP - ST I



CONSTRUCTION SPECIFICATIONS
1. THE AREA UNDER THE EMBANKMENT SHALL BE CLEARED, GRUBBED AND STRIPPED OF ANY VEGETATION AND ROOT MAT. THE POOL AREA SHALL BE CLEARED.
2. THE FILL MATERIAL FOR THE EMBANKMENT SHALL BE FREE OF ROOTS OR OTHER WOODY VEGETATION AS WELL AS OVER-SIZED STONES, ROCKS, ORGANIC MATERIAL OR OTHER OBJECTIONABLE MATERIAL.

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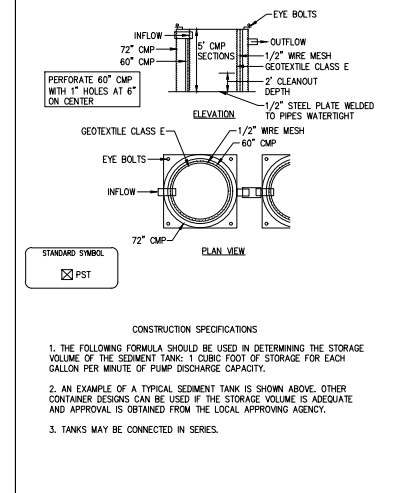
PIPE OUTLET SEDIMENT TRAP - ST II



CONSTRUCTION SPECIFICATIONS
1. THE AREA UNDER THE EMBANKMENT SHALL BE CLEARED, GRUBBED AND STRIPPED OF ANY VEGETATION AND ROOT MAT. THE POOL AREA SHALL BE CLEARED.
2. THE FILL MATERIAL FOR THE EMBANKMENT SHALL BE FREE OF ROOTS OR OTHER WOODY VEGETATION AS WELL AS OVER-SIZED STONES, ROCKS, ORGANIC MATERIAL OR OTHER OBJECTIONABLE MATERIAL.

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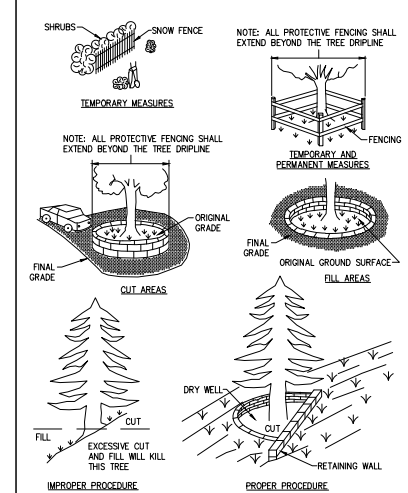
DETAIL 13 - STONE OUTLET SEDIMENT TRAP - ST II



CONSTRUCTION SPECIFICATIONS
1. AREA UNDER EMBANKMENT SHALL BE CLEARED, GRUBBED AND STRIPPED OF ANY VEGETATION AND ROOT MAT. THE POOL AREA SHALL BE CLEARED.
2. THE FILL MATERIAL FOR THE EMBANKMENT SHALL BE FREE OF ROOTS AND OTHER WOODY VEGETATION AS WELL AS OVER-SIZED STONES, ROCKS, ORGANIC MATERIAL OR OTHER OBJECTIONABLE MATERIAL.

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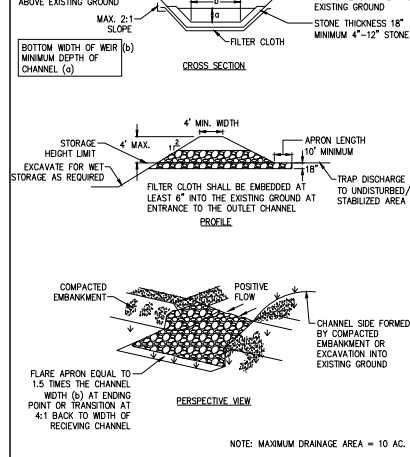
STONE OUTLET SEDIMENT TRAP - ST II



CONSTRUCTION SPECIFICATIONS
1. AREA UNDER EMBANKMENT SHALL BE CLEARED, GRUBBED AND STRIPPED OF ANY VEGETATION AND ROOT MAT. THE POOL AREA SHALL BE CLEARED.
2. THE FILL MATERIAL FOR THE EMBANKMENT SHALL BE FREE OF ROOTS AND OTHER WOODY VEGETATION AS WELL AS OVER-SIZED STONES, ROCKS, ORGANIC MATERIAL OR OTHER OBJECTIONABLE MATERIAL.

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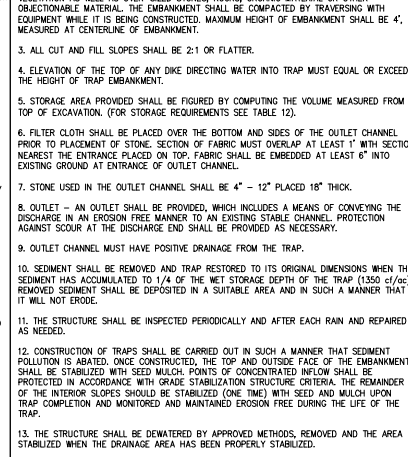
DETAIL 14 - RIP-RAP OUTLET SEDIMENT TRAP - ST III



CONSTRUCTION SPECIFICATIONS
1. THE AREA UNDER THE EMBANKMENT SHALL BE CLEARED, GRUBBED AND STRIPPED OF ANY VEGETATION AND ROOT MAT. THE POOL AREA SHALL BE CLEARED.
2. THE FILL MATERIAL FOR THE EMBANKMENT SHALL BE FREE OF ROOTS OR OTHER WOODY VEGETATION AS WELL AS OVER-SIZED STONES, ROCKS, ORGANIC MATERIAL OR OTHER OBJECTIONABLE MATERIAL.

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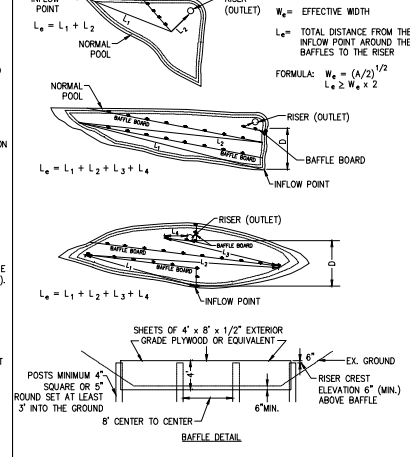
RIP-RAP OUTLET SEDIMENT TRAP - ST III



CONSTRUCTION SPECIFICATIONS
1. THE AREA UNDER THE EMBANKMENT SHALL BE CLEARED, GRUBBED AND STRIPPED OF ANY VEGETATION AND ROOT MAT. THE POOL AREA SHALL BE CLEARED.
2. THE FILL MATERIAL FOR THE EMBANKMENT SHALL BE FREE OF ROOTS OR OTHER WOODY VEGETATION AS WELL AS OVER-SIZED STONES, ROCKS, ORGANIC MATERIAL OR OTHER OBJECTIONABLE MATERIAL.

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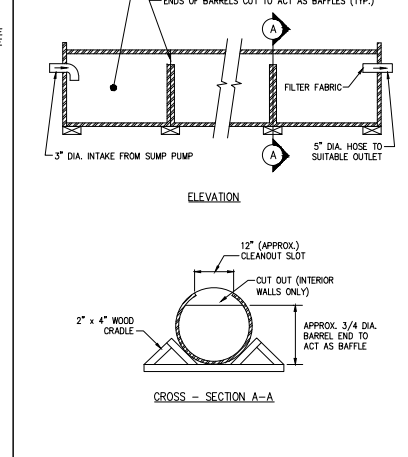
DETAIL 22 - SEDIMENT BASIN/TRAP BAFFLES



CONSTRUCTION SPECIFICATIONS
1. THE AREA UNDER THE EMBANKMENT SHALL BE CLEARED, GRUBBED AND STRIPPED OF ANY VEGETATION AND ROOT MAT. THE POOL AREA SHALL BE CLEARED.
2. THE FILL MATERIAL FOR THE EMBANKMENT SHALL BE FREE OF ROOTS OR OTHER WOODY VEGETATION AS WELL AS OVER-SIZED STONES, ROCKS, ORGANIC MATERIAL OR OTHER OBJECTIONABLE MATERIAL.

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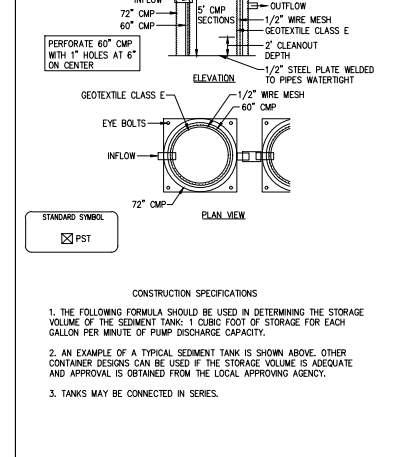
DETAIL 34 - PORTABLE SEDIMENT TANK (HORIZONTAL)



CONSTRUCTION SPECIFICATIONS
1. THE AREA UNDER THE EMBANKMENT SHALL BE CLEARED, GRUBBED AND STRIPPED OF ANY VEGETATION AND ROOT MAT. THE POOL AREA SHALL BE CLEARED.
2. THE FILL MATERIAL FOR THE EMBANKMENT SHALL BE FREE OF ROOTS OR OTHER WOODY VEGETATION AS WELL AS OVER-SIZED STONES, ROCKS, ORGANIC MATERIAL OR OTHER OBJECTIONABLE MATERIAL.

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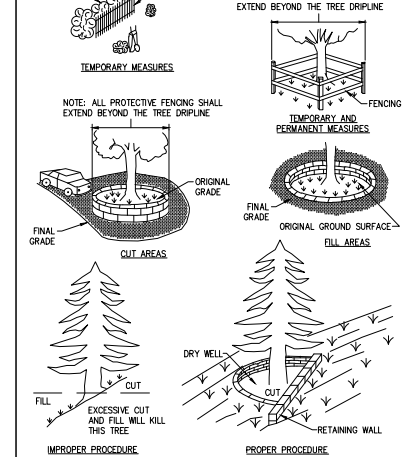
DETAIL 35 - PORTABLE SEDIMENT TANK (VERTICAL)



CONSTRUCTION SPECIFICATIONS
1. THE AREA UNDER THE EMBANKMENT SHALL BE CLEARED, GRUBBED AND STRIPPED OF ANY VEGETATION AND ROOT MAT. THE POOL AREA SHALL BE CLEARED.
2. THE FILL MATERIAL FOR THE EMBANKMENT SHALL BE FREE OF ROOTS OR OTHER WOODY VEGETATION AS WELL AS OVER-SIZED STONES, ROCKS, ORGANIC MATERIAL OR OTHER OBJECTIONABLE MATERIAL.

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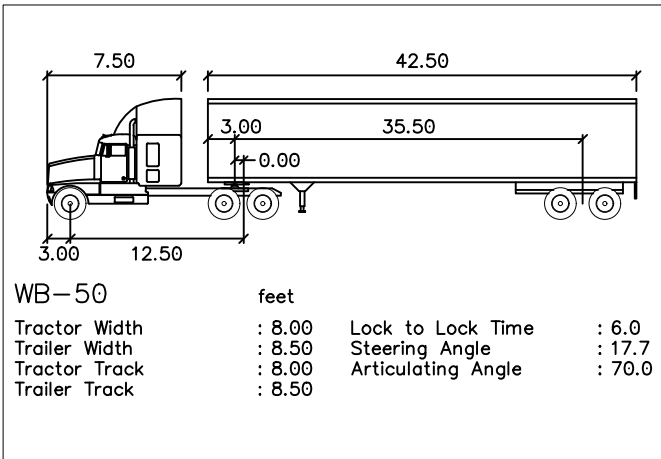
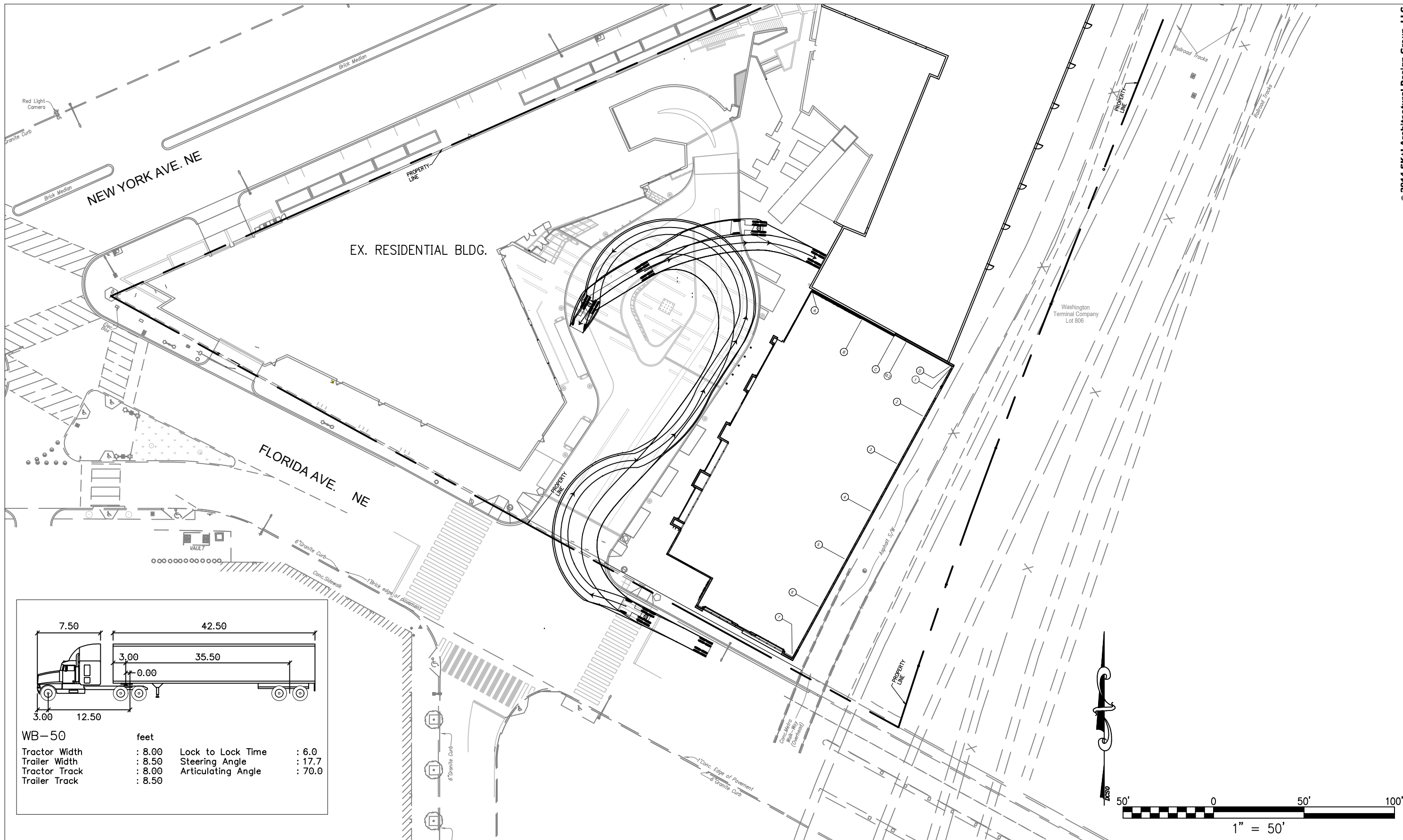
DETAIL 74 - TREE PROTECTION



CONSTRUCTION SPECIFICATIONS
1. THE FOLLOWING FORMULA SHOULD BE USED IN DETERMINING THE STORAGE VOLUME OF THE SEDIMENT TANK: CUBIC FOOT OF STORAGE FOR EACH GALLON PER MINUTE OF PUMP DISCHARGE CAPACITY.

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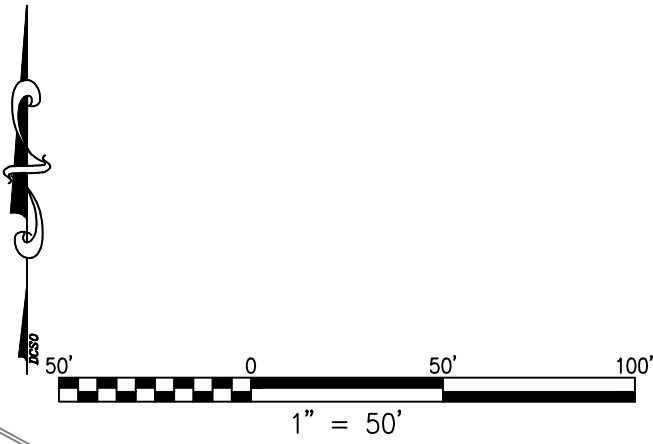
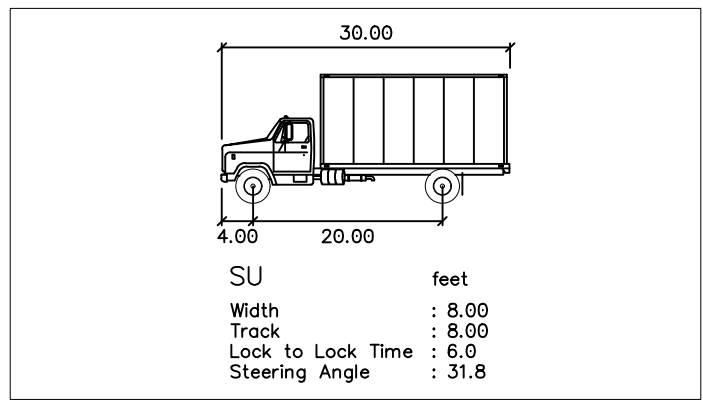
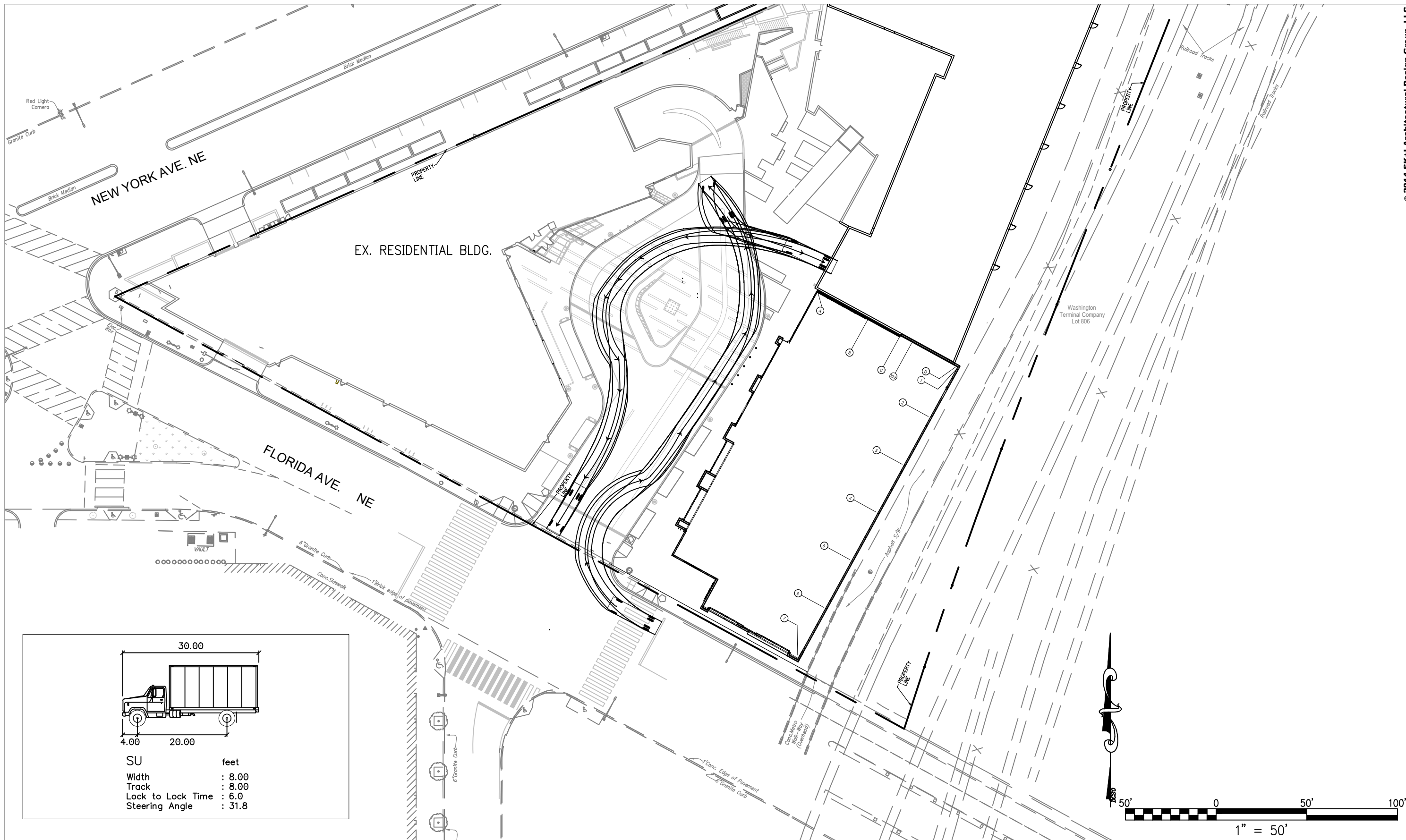
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Truck Turning Plan WB-50





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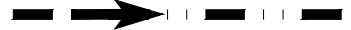




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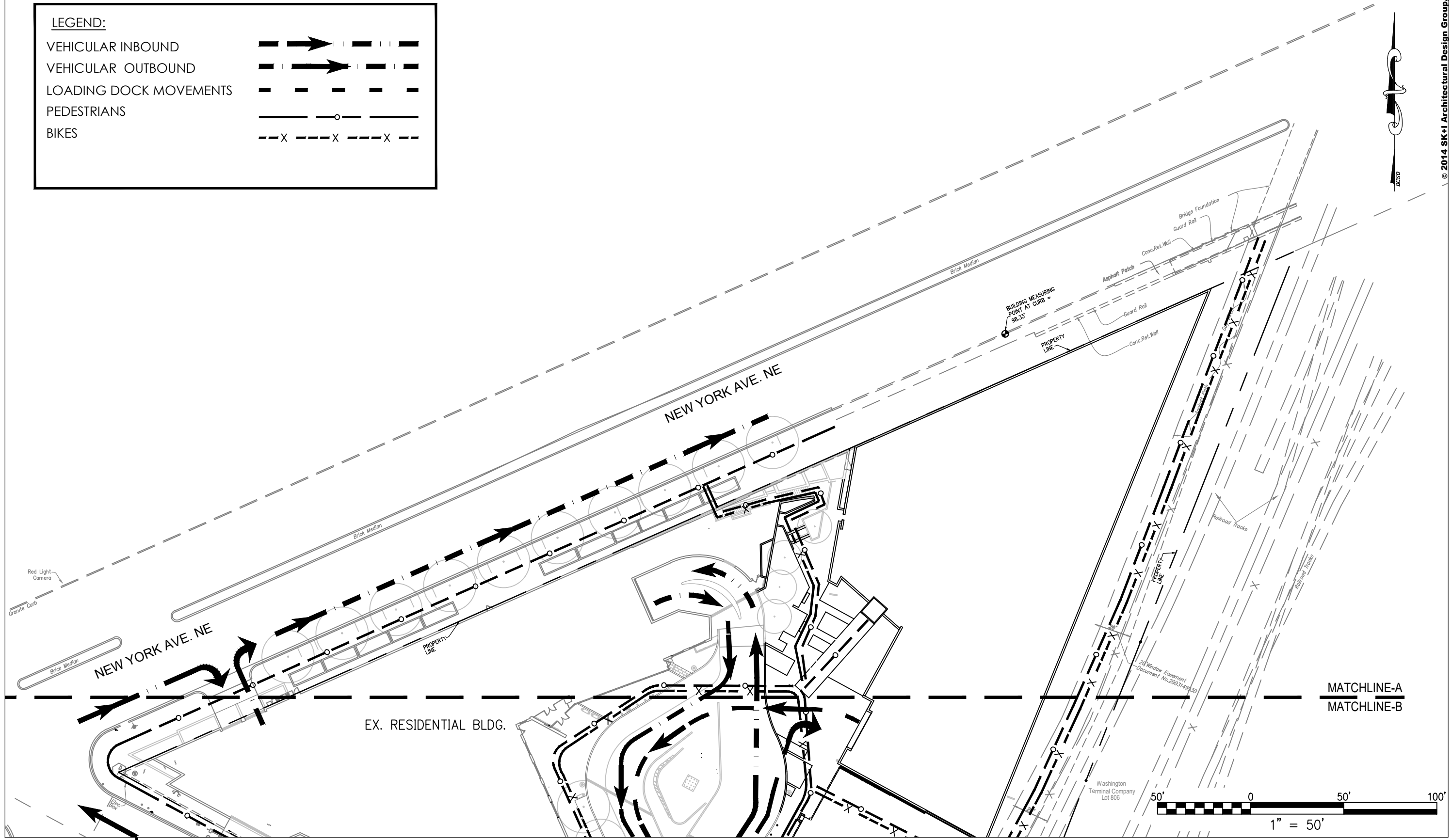


Truck Turning Plan SU



LEGEND:

- VEHICULAR INBOUND 
- VEHICULAR OUTBOUND 
- LOADING DOCK MOVEMENTS 
- PEDESTRIANS 
- BIKES 



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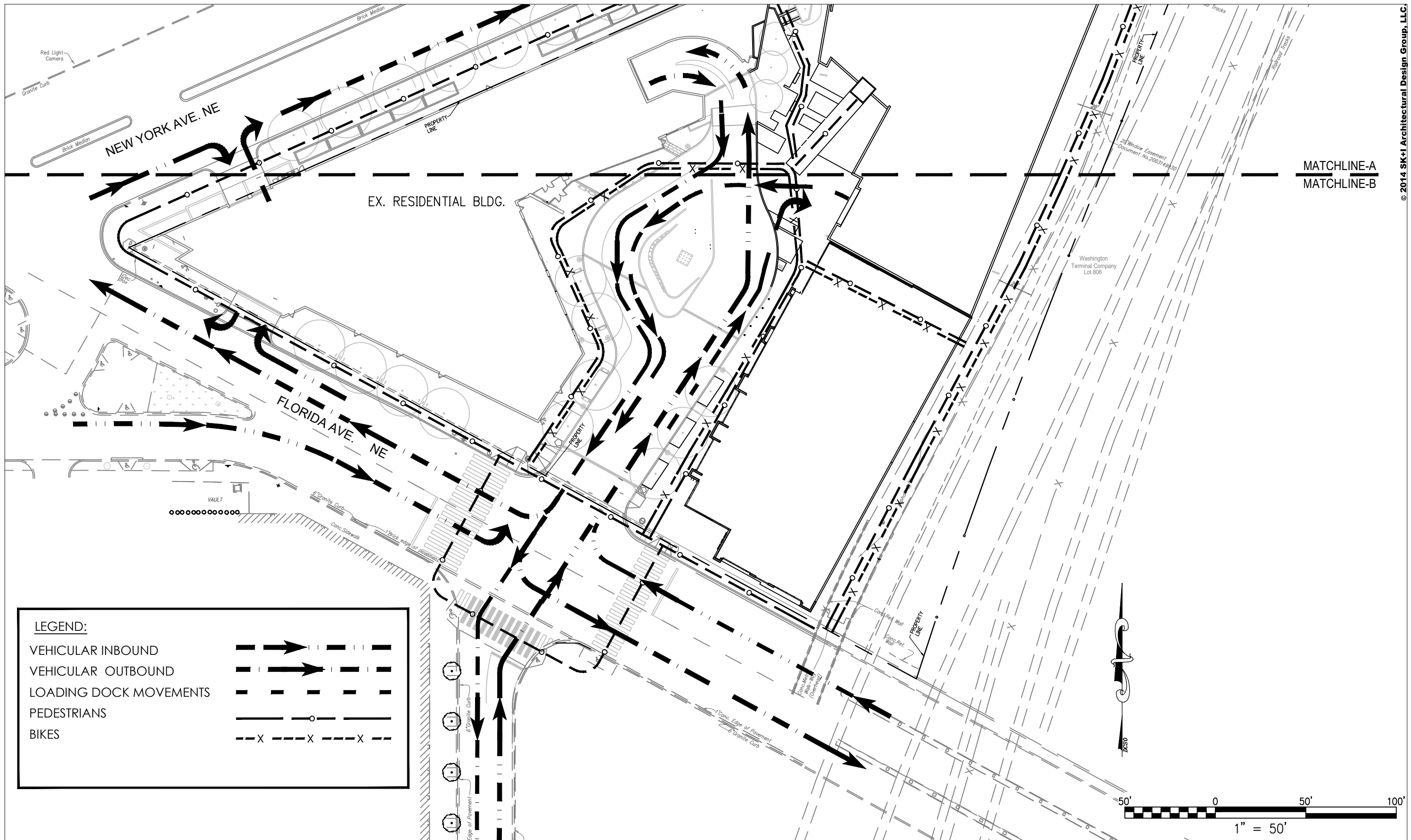
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Circulation Plan A



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LEGEND:

- VEHICULAR INBOUND
- VEHICULAR OUTBOUND
- LOADING DOCK MOVEMENTS
- PEDESTRIANS
- BIKES

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Circulation Plan B



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STORMWATER MANAGEMENT NARRATIVE:

THE PROJECT WILL BE UNDER THE 2013 STORMWATER MANAGEMENT REQUIREMENTS PER THE DEPARTMENT OF ENERGY AND ENVIRONMENT. THIS WILL BE A MAJOR LAND DISTURBING ACTIVITY, THEREFORE, THE SITE WILL RETAIN THE FIRST 1.2" OF RAINFALL. GREEN ROOF WILL BE USED TO MEET THE SITE RETENTION AND DETENTION REQUIREMENTS.

GENERAL NOTE:

1. REFER TO ARCHITECTURAL DRAWINGS FOR WATERPROOFING OF SWM STRUCTURE.
2. REFER TO LANDSCAPE DRAWINGS FOR GREEN ROOF DETAILS.
3. REFER TO LANDSCAPE AND ARCHITECTURAL FOR PLANT MATERIALS.
4. REFER TO LANDSCAPE DRAWINGS FOR GREEN ROOF MAINTENANCE NOTES.

NOTE:

"NO PERMITTED STORM WATER BMP IS COMPLETE UNTIL FINAL INSPECTION HAS BEEN CONDUCTED AND AN AS-BUILT PLAN HAS BEEN SUBMITTED TO THE DOE WITHIN 21 DAYS AFTER FINAL INSPECTION FOR REVIEW AND APPROVAL."

GREEN ROOF INSTALLATION

GIVEN THE DIVERSITY OF EXTENSIVE VEGETATED ROOF DESIGNS, THERE IS NO TYPICAL STEP-BY-STEP CONSTRUCTION SEQUENCE FOR PROPER INSTALLATION. THE FOLLOWING GENERAL CONSTRUCTION CONSIDERATIONS ARE NOTED:

- CONSTRUCT THE ROOF DECK WITH THE APPROPRIATE SLOPE AND MATERIAL.
- INSTALL THE WATERPROOFING METHOD, ACCORDING TO MANUFACTURER'S SPECIFICATIONS.
- CONDUCT A FLOOD TEST TO ENSURE THE SYSTEM IS WATERTIGHT BY PLACING AT LEAST 2 INCHES OF WATER OVER THE MEMBRANE FOR 48 HOURS TO CONFIRM THE INTEGRITY OF THE WATERPROOFING SYSTEM. ALTERNATELY, ELECTRIC FIELD VECTOR MAPPING (EFVM) CAN BE DONE TO TEST FOR THE PRESENCE OF LEAKS; HOWEVER, NOT ALL IMPERMEABLE MEMBRANES ARE TESTABLE WITH THIS METHOD. PROBLEMS
- HAVE BEEN NOTED WITH THE USE OF EFVM ON BLACK EPDM AND WITH ALUMINIZED PROTECTIVE COATINGS COMMONLY USED IN CONJUNCTION WITH MODIFIED BITUMINOUS MEMBRANES.
- ADD ADDITIONAL SYSTEM COMPONENTS (E.G., INSULATION, ROOT BARRIER, DRAINAGE LAYER AND INTERIOR DRAINAGE SYSTEM, AND FILTER FABRIC) PER THE MANUFACTURER'S SPECIFICATIONS, TAKING CARE NOT TO DAMAGE THE WATERPROOFING. ANY DAMAGE OCCURRING MUST BE REPORTED IMMEDIATELY. DRAIN COLLARS AND PROTECTIVE FLASHING SHOULD BE INSTALLED TO ENSURE FREE FLOW OF EXCESS STORMWATER.
- THE GROWING MEDIA SHOULD BE MIXED PRIOR TO DELIVERY TO THE SITE. MEDIA MUST BE SPREAD EVENLY OVER THE FILTER FABRIC SURFACE AS REQUIRED BY THE MANUFACTURER. IF A DELAY BETWEEN THE INSTALLATION OF THE GROWING MEDIA AND THE PLANTS IS REQUIRED, ADEQUATE EFFORTS MUST BE TAKEN TO SECURE THE GROWING MEDIA FROM EROSION AND THE SEEDING OF WEEDS. THE GROWING MEDIA MUST BE COVERED AND ANCHORED IN PLACE UNTIL PLANTING. SHEETS OF EXTERIOR GRADE PLYWOOD CAN ALSO BE LAID OVER THE GROWING MEDIA TO ACCOMMODATE FOOT OR WHEELBARROW TRAFFIC. FOOT TRAFFIC AND EQUIPMENT TRAFFIC SHOULD BE LIMITED OVER THE GROWING MEDIA TO REDUCE COMPACTION BEYOND MANUFACTURER'S RECOMMENDATIONS.
- THE GROWING MEDIA SHOULD BE MOISTENED PRIOR TO PLANTING, AND THEN PLANTED WITH THE GROUND COVER AND OTHER PLANT MATERIALS, PER THE PLANTING PLAN OR IN ACCORDANCE WITH ASTM E2400. PLANTS SHOULD BE WATERED IMMEDIATELY AFTER INSTALLATION AND ROUTINELY DURING ESTABLISHMENT.
- IT GENERALLY TAKES 2 TO 3 GROWING SEASONS TO FULLY ESTABLISH THE VEGETATED ROOF. THE GROWING MEDIUM SHOULD CONTAIN ENOUGH ORGANIC MATTER TO SUPPORT PLANTS FOR THE FIRST GROWING SEASON, SO INITIAL FERTILIZATION IS NOT REQUIRED. EXTENSIVE GREEN ROOFS MAY REQUIRE SUPPLEMENTAL IRRIGATION DURING THE FIRST FEW MONTHS OF ESTABLISHMENT. HAND WEEDING IS ALSO CRITICAL IN THE FIRST TWO YEARS.



INITIAL STORMWATER MANAGEMENT ANALYSIS

4/29/2016

Washinton Gateway

TOTAL SITE AREA:	59,779 SF
Impervious Area	39,052 SF
Compacted Cover	3,322 SF
BMP Area	17,405 SF
TOTAL RETENTION VOLUME REQUIRED:	5,446 CF

STORMWATER MANAGEMENT NARRATIVE:

MAXIMUM EXTENT PRACTICABLE IN THE PROW

THE PUBLIC RIGHT OF WAY PORTION OF THIS PROJECT WILL BE UNDER THE 2013 STORMWATER MANAGEMENT REQUIREMENTS PER THE DEPARTMENT OF ENERGY AND ENVIRONMENT. THE SITE WILL MEET THE PROW RETENTION REQUIREMENTS TO THE MAXIMUM EXTENT PRACTICABLE.

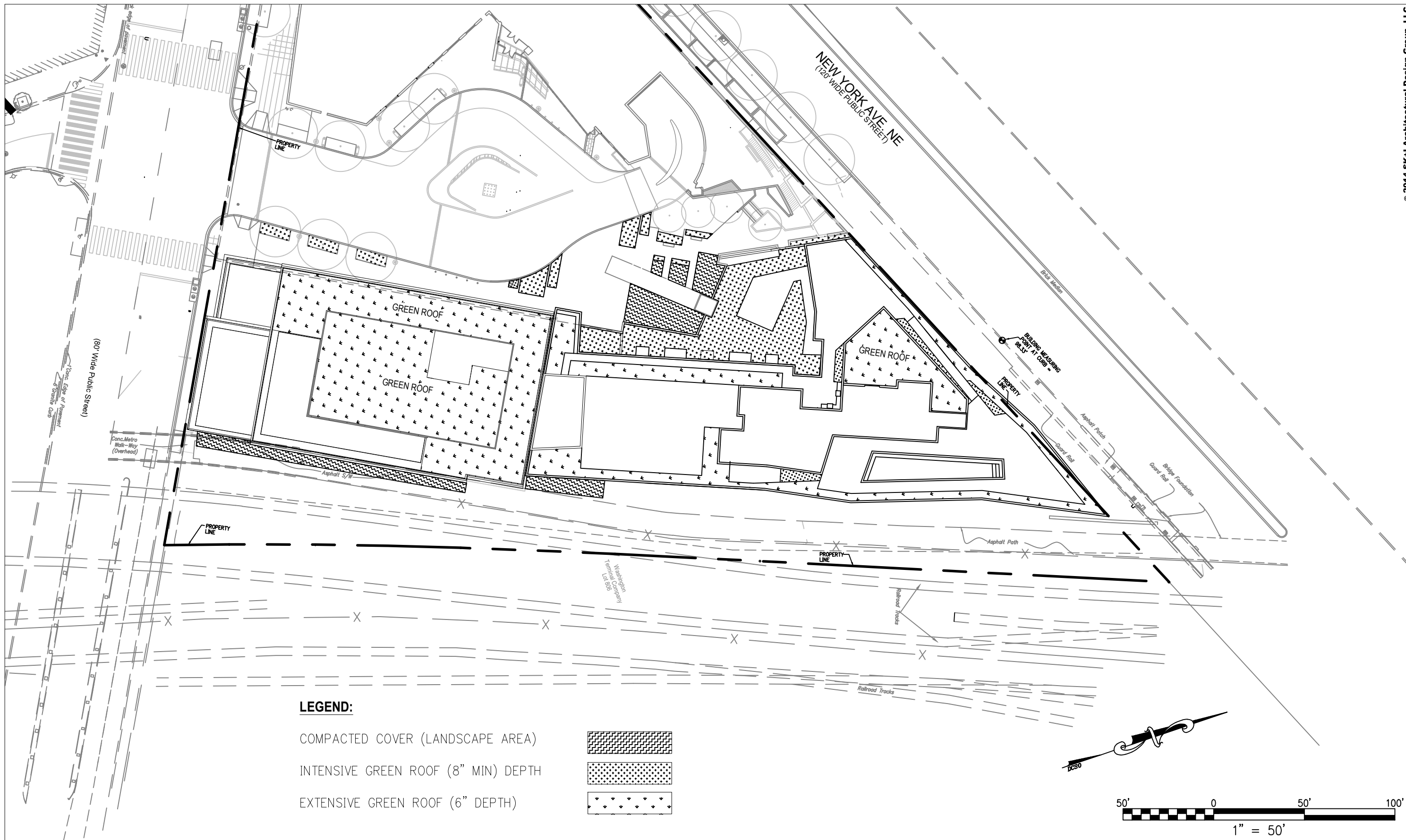
GREEN ROOF NOTE:

FERTILIZER IS NOT RECOMMENDED. IF APPLIED, THE FERTILIZER MUST BE A SLOW RELEASE TYPE, RATHER THAN LIQUID OR GASEOUS FORM.




	Media Depth (INCHES)	Area of Green Roof (SF)	Storage Capacity of Green Roof (CF)	Additional Area Draining to Green Roof (SF)	Maximum Retention Volume To BMP (CF)	Retention Value (CF)
Extensive Green Roof	6	15,539	3,432	-	2,091	2,091
Intensive Green Roof	8	1,866	536	-	251	251
TOTAL		17,405	3,968	-	2,342	2,342

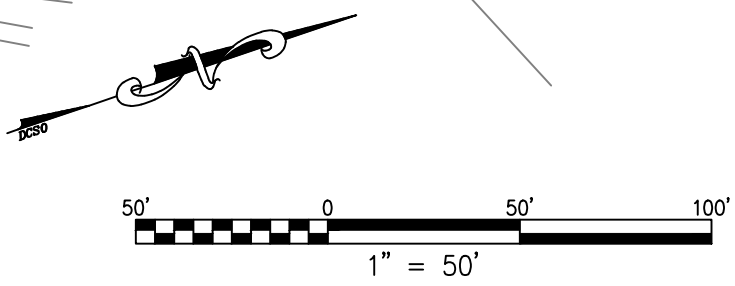
* Site Area and Green Roof Depths and Areas Taken From Oculus GAR Diagram Dated 4/15/16





LEGEND:

- COMPACTED COVER (LANDSCAPE AREA) 
- INTENSIVE GREEN ROOF (8" MIN) DEPTH 
- EXTENSIVE GREEN ROOF (6" DEPTH) 



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Stormwater Management Plan B

