Attachment 3

Facility Sizing Calculations

Attachment 3-1 Drainage Area Figures

Attachment 3-2 Water Quality Volume Calculations

Attachment 3-3 Outlet Structure Orifice Sizing Calculations

Attachment 3-4 Wet Swale Stage Storage Volume Calculations

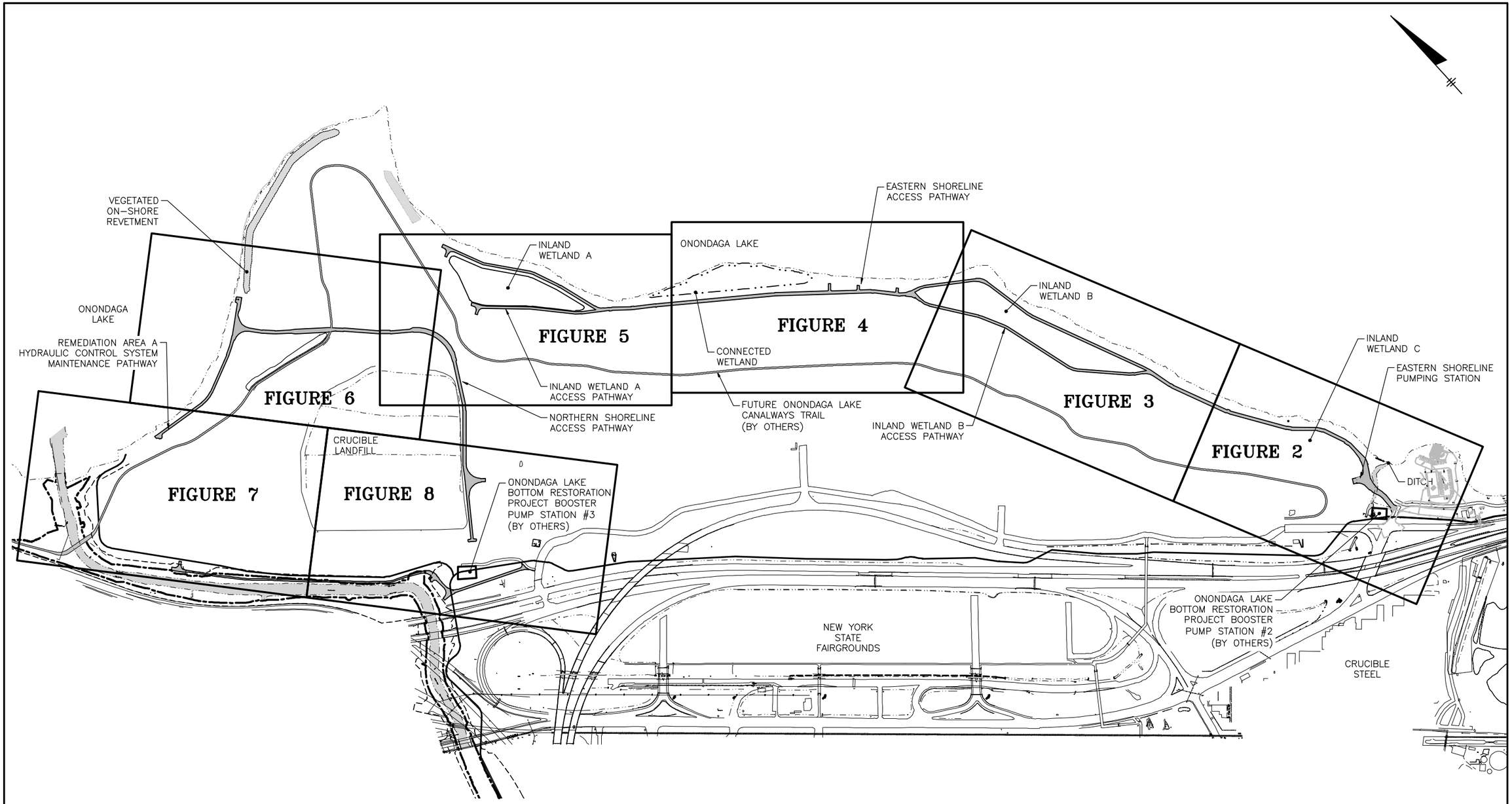
Attachment 3-5 Stage-Discharge Calculations

Attachment 3-6 SCS TR-55 Time of Concentration Computations Report

Attachment 3-1

Drainage Area Figures

Apr 27, 2012 – 1:40pm



OVERALL KEY PLAN

SCALE: 1"=300'

I:\Honeywell.1163\47228.Wb-1-8-Integrat\Docs\DWG\Sheets\Drainage Figures\47228-FIGURE 1.dwg

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1"=300' 300 0 300 600

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WASTEBEDS 1–8
INTEGRATED IRM

CIVIL

POST–DEVELOPMENT CONDITION
DRAINAGE AREA
KEY PLAN

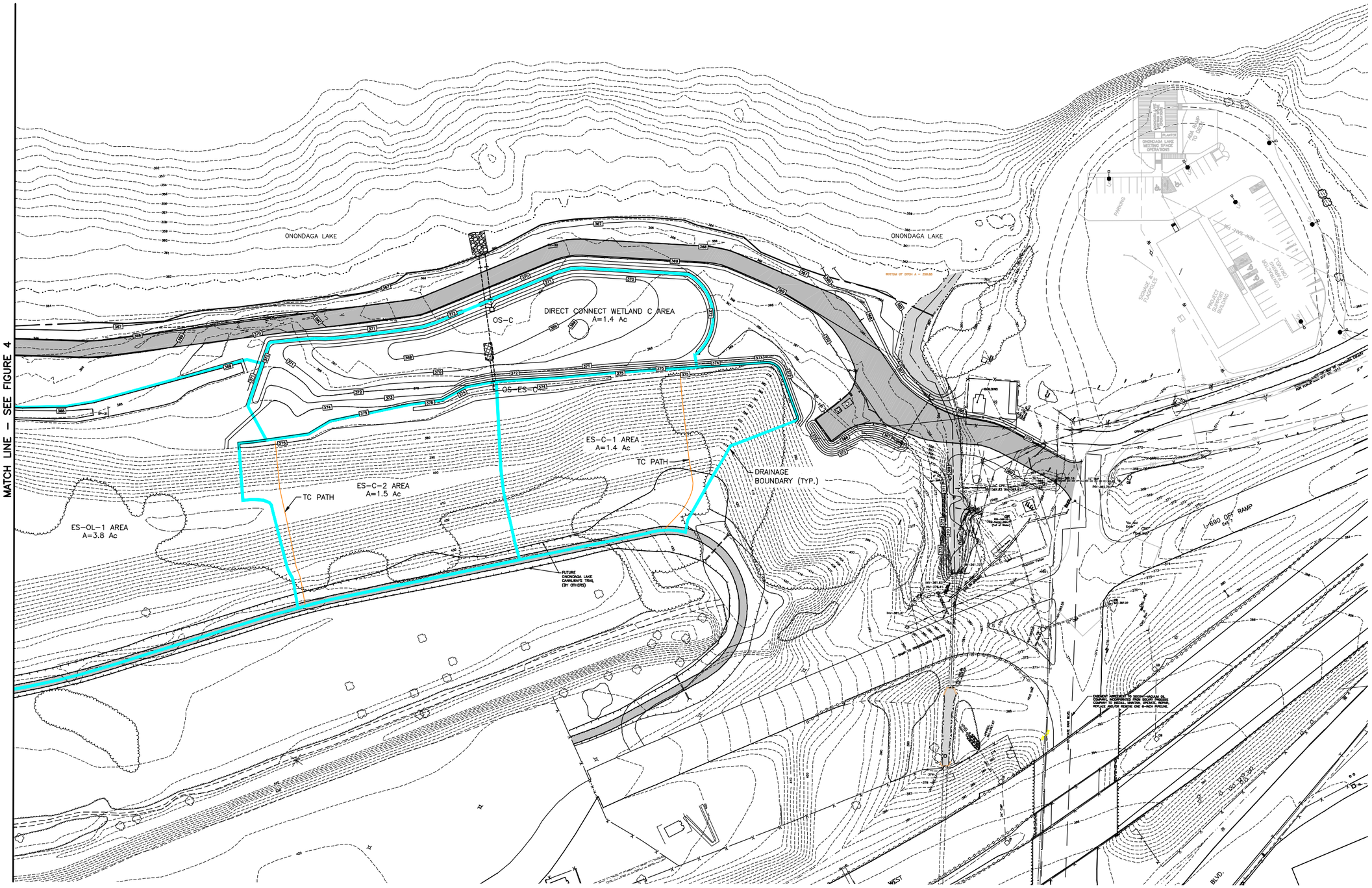
FILE NO. 1163.47228–FIG1

DATE APRIL 2011

FIG 1

Apr 27, 2012 – 10:50am

MATCH LINE – SEE FIGURE 4



1"=60' 60 0 60 120

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POST–DEVELOPMENT CONDITION
DRAINAGE AREA PLAN
EASTERN SHORELINE

FILE NO. 1163.47228–FIG2

DATE APRIL 2012

FIG 2

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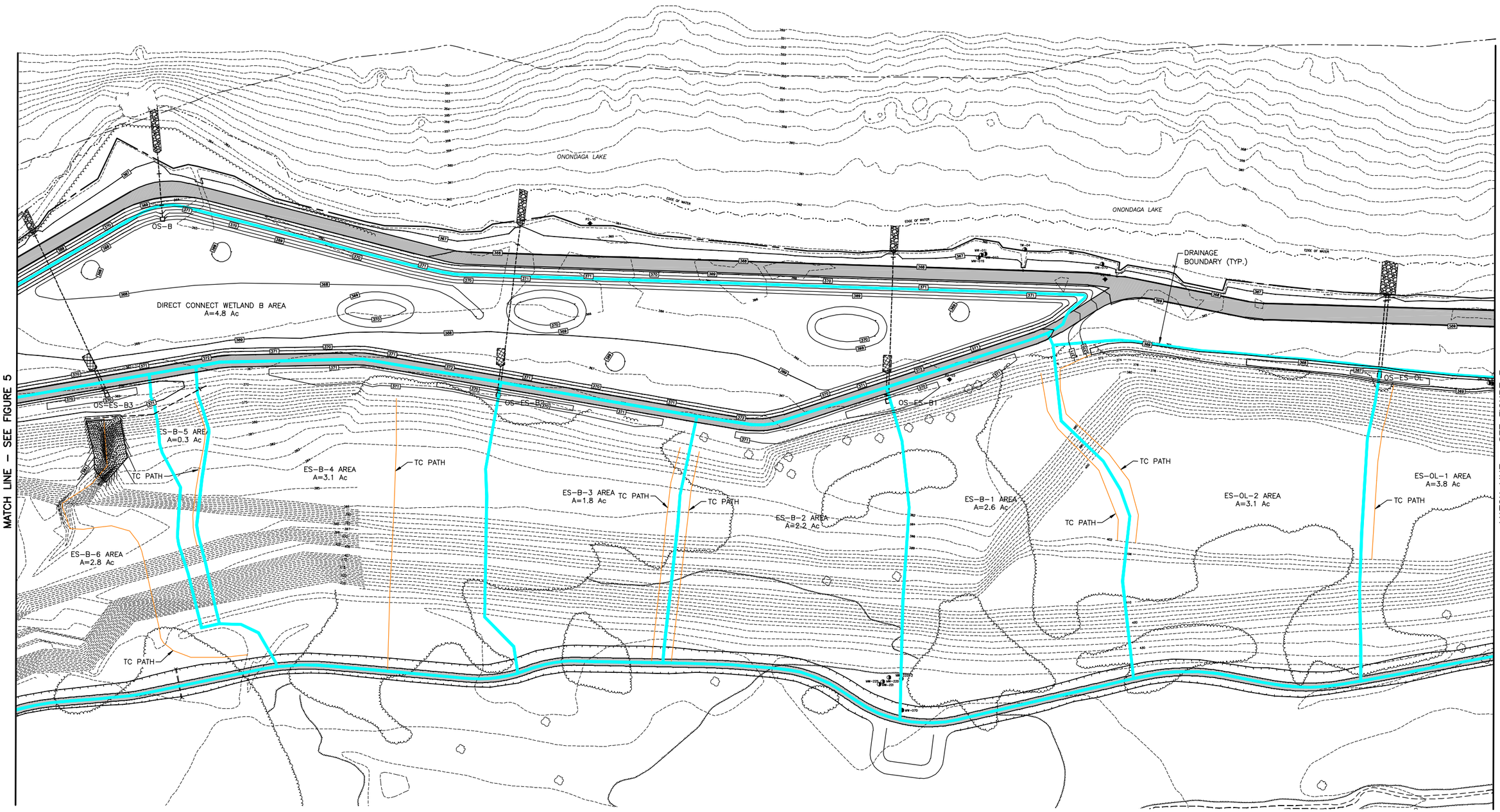
I:\Honeywell.1163\47228.Wb-1-8-Integral\Docs\DWG\Sheets\Drainage Figures\47228-FIGURE 2.dwg

Apr 27, 2012 – 10:52am

MATCH LINE – SEE FIGURE 5



MATCH LINE – SEE FIGURE 3

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1"=60' 60 0 60 120

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POST–DEVELOPMENT CONDITION
DRAINAGE AREA PLAN
EASTERN SHORELINE

FILE NO. 1163.47228–FIG3

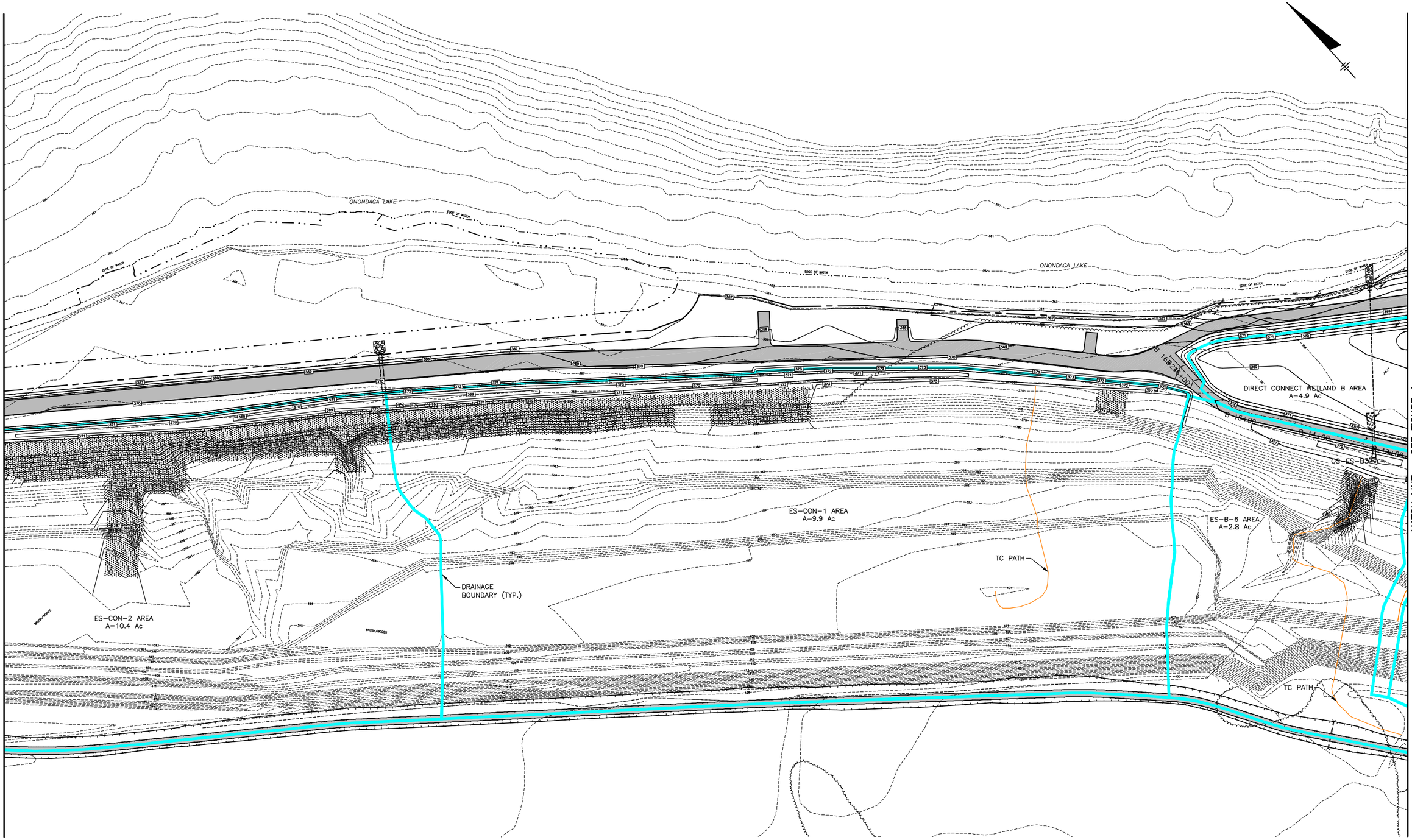
DATE APRIL 2012

FIG 3

I:\Honeywell.1163\47228.Wb-1-8-Integrat\Docs\DWG\Sheets\Drainage Figures\47228-FIGURE 3.dwg

Apr 27, 2012 – 10:55am

MATCH LINE – SEE FIGURE 6



MATCH LINE – SEE FIGURE 4

I:\Honeywell.1163\47228.Wb-1-8-Integral\Docs\DWG\Sheets\Drainage Figures\47228-FIGURE 4.dwg

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1"=60' 60 0 60 120

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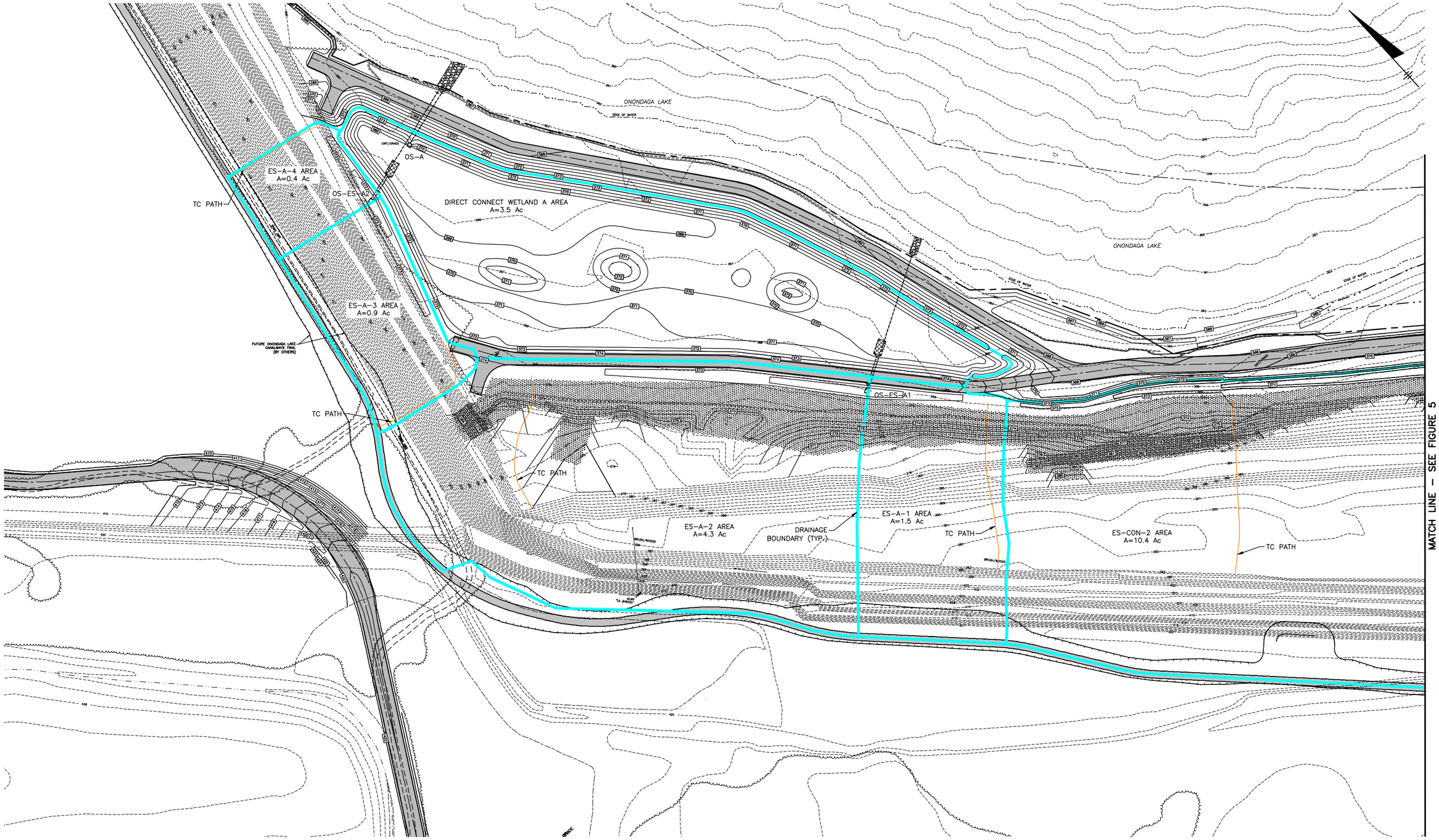
POST–DEVELOPMENT CONDITION
DRAINAGE AREA PLAN
EASTERN SHORELINE

FILE NO. 1163.47228–FIG4

DATE APRIL 2012

FIG 4

Apr 27, 2012 – 10:57am



1"=60' 60 0 60 120

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POST–DEVELOPMENT CONDITION
DRAINAGE AREA PLAN
EASTERN SHORELINE

FILE NO. 1163.47228–FIG5

DATE APRIL 2012

FIG 5

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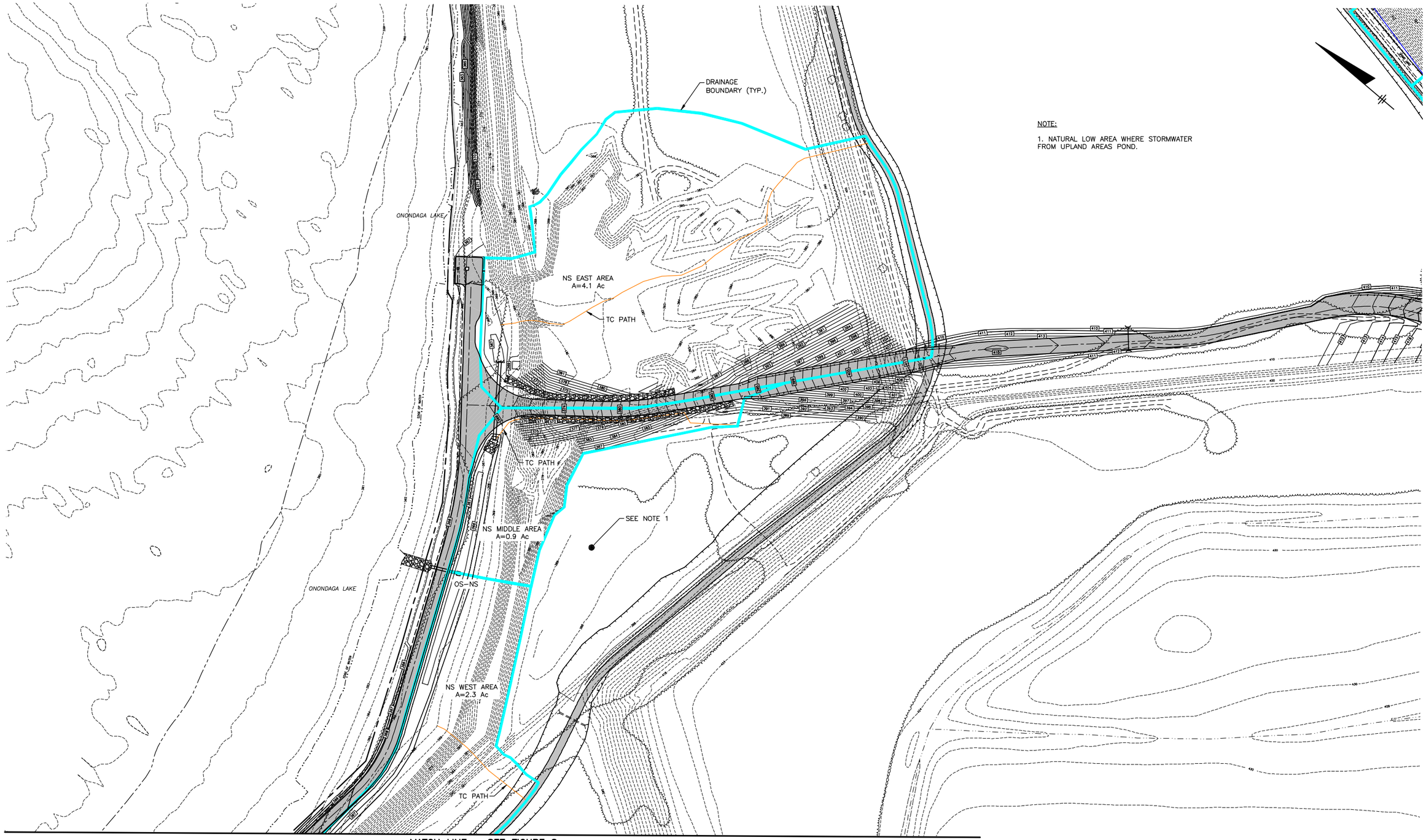
I:\Honeywell.1163\47228.Wb-1-8-Integrat\Docs\DWG\Sheets\Drainage Figures\47228-FIGURE 5.dwg



1"=60' 60 0 60 120

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POST–DEVELOPMENT CONDITION
DRAINAGE AREA PLAN
NORTHERN SHORELINE

FILE NO. 1163.47228–FIG6

DATE APRIL 2012

FIG 6

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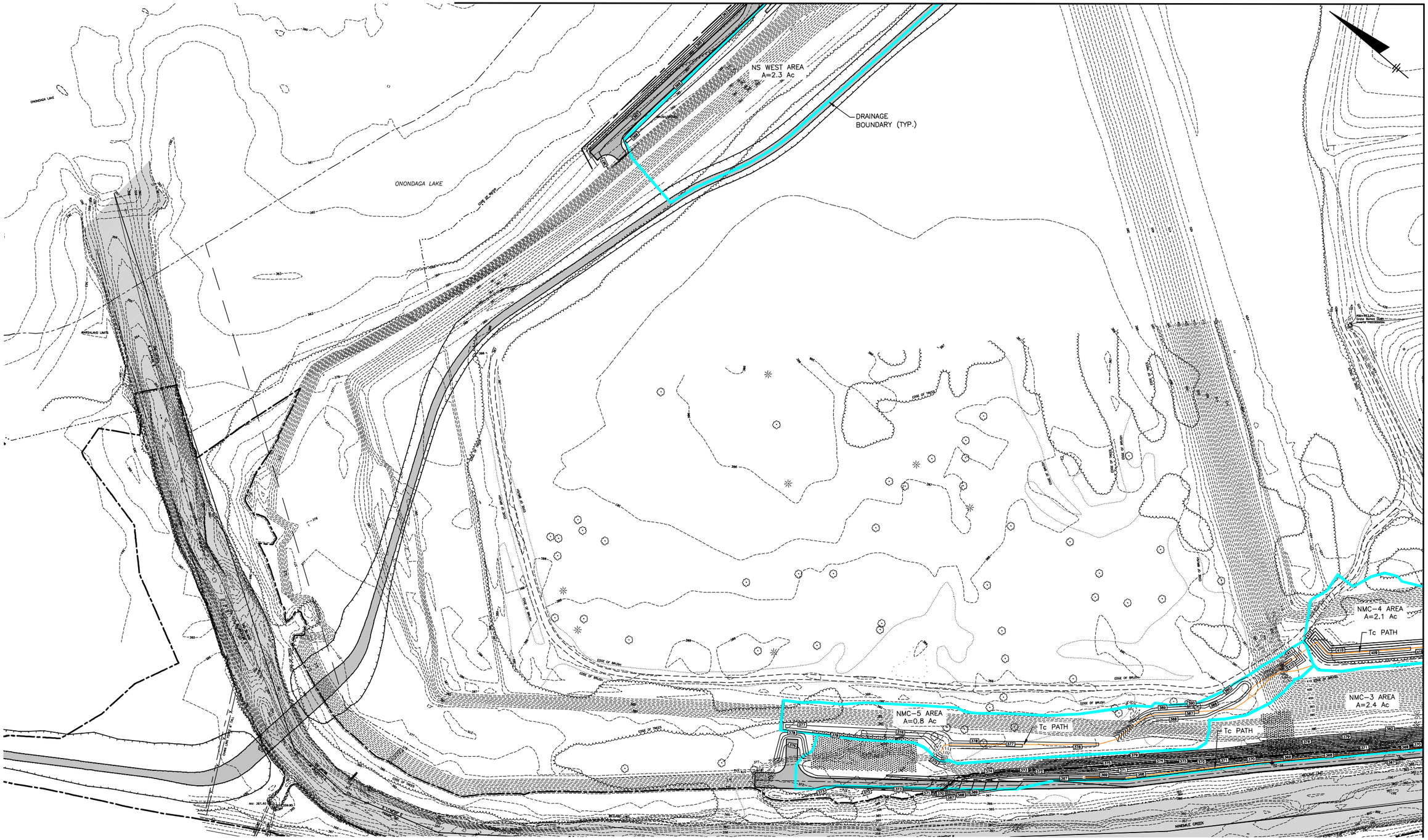
Apr 27, 2012 – 10:59am

I:\Honeywell.1163\47228.Wb-1-8-Integrat\Docs\DWG\Sheets\Drainage Figures\47228-FIGURE 6.dwg

Apr 27, 2012 – 11:02am

MATCH LINE – SEE FIGURE 7



MATCH LINE – SEE FIGURE 9

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1"=60' 60 0 60 120

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POST–DEVELOPMENT CONDITION
DRAINAGE AREA PLAN
NORTHERN SHORELINE/NINEMILE CREEK

FILE NO. 1163.47228–FIG7

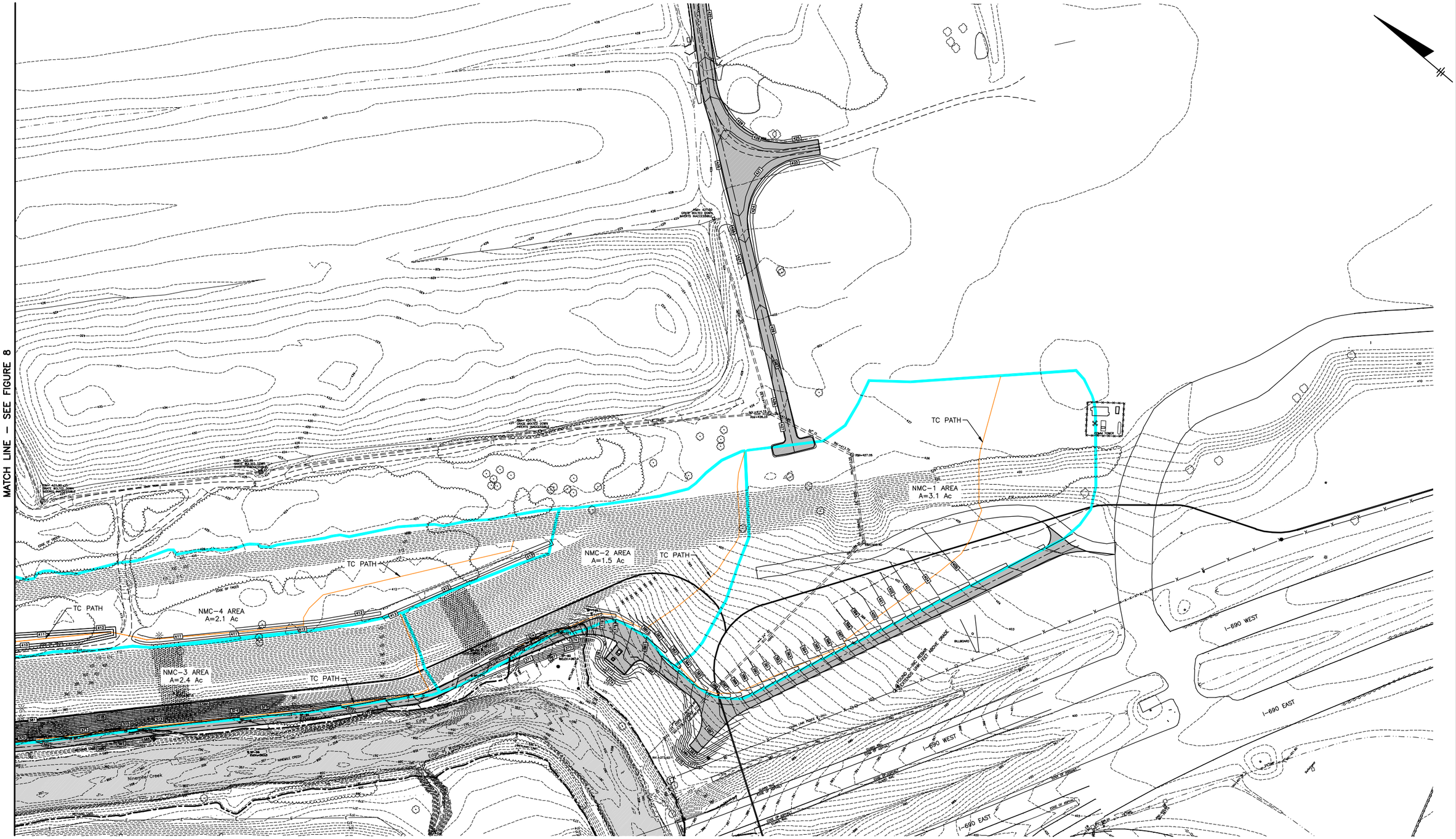
DATE APRIL 2012

FIG 7

I:\Honeywell.1163\47228.Wb-1-8-Integrat\Docs\DWG\Sheets\Drainage Figures\47228-FIGURE 7.dwg

Apr 27, 2012 – 11:04am

MATCH LINE – SEE FIGURE 8



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1"=60' 60 0 60 120

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WASTEBEDS 1–8
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POST–DEVELOPMENT CONDITION
DRAINAGE AREA PLAN
NINEMILE CREEK

FILE NO. 1163.47228–FIG8

DATE APRIL 2012

FIG 8

I:\Honeywell.1163\47228.Wb–1–8–Integrat\Docs\DWG\Sheets\Drainage Figures\47228–FIGURE 8.dwg

Attachment 3-2

Water Quality Volume Calculations

Honeywell International, Inc.
Wastebeds 1-8
Integrated IRM

Stormwater Pollution Prevention Plan

Attachment 3-2
Water Quality Volume Calculations

Q = runoff (inches)					
P = rainfall (inches)					
S = potential maximum retention after runoff begins (inches)					
Ia = initial abstration (inches)					
CN=	77		Curve Number used as D Soils with cover type of good woods or fair brush, brush/week/grass mixture		
S =	(1000/CN)-10				
	2.99	inches			
Ia=	0.2*S				
	0.60	inches			
P=	2.01	inches	1-year, 24-hour storm	(http://precip.eas.cornell.edu/)	
Q=	[(P-Ia)^2]/[(P-Ia)+S]				
	0.45	inches			
$WQ_v = [(P)\ (R_v)\ (A)]/12$					
WQ_v - water quality volume, ac. ft.				R_v – 0.05+ 0.009(I)	
P – 90% Rainfall Event Number (0.88 for Cortland County per Figure 4.1), inches				A – site area, acres	
Wet Swale Outlet Device (Structure or Check Dam)[1]	**Tributary Drainage Area/Swale Name**	**Drainage Area Size (ft^2)**	**Water Quality (Runoff) Volume (ft^3)**	**Total Water Quality Volume Treated Per Outlet Structure (ft^3)**	
OS-ES-C	ES-C-1	62,348	2,356	4,796	
	ES-C-2	64,556	2,440		
OS-EL-OL	ES-OL-1	164,375	6,213	11,314	
	ES-OL-2	134,966	5,101		
OS-ES-B1	ES-B-1	113,433	4,287	7,924	
	ES-B-2	96,214	3,636		
OS-ES-B2	ES-B-3	78,502	2,967	8,082	
	ES-B-4	135,336	5,115		
OS-ES-B3	ES-B-5	12,314	465	5,013	
	ES-B-6	120,323	4,548		
OS-ES-CON	ES-CON-1	430,678	16,278	33,320	
	ES-CON-2	450,893	17,042		
OS-ES-A1	ES-A-1	63,658	2,406	9,446	
	ES-A-2	186,255	7,040		
OS-ES-A2	ES-A-3	38,083	1,439	2,165	
	ES-A-4	19,206	726		
OS-NMC-01	NMC 3 and NMC 4	195,600	7,393	7,393	
Check Dam #1	NMC 5	12,298	465	465	
Check Dam #2	NMC 5	12,298	465	465	
Check Dam #3	NMC 5	12,298	465	465	
OS-NS-01	N Shoreline - West	99,339	3,755	11,999	
	N Shoreline - Middle	38,020	1,437		
	N Shoreline - East	180,119	6,808		
[1] Refer to Attachment 3-1, Drainage Area Figures, for Wet Swale locations					

Attachment 3-3

Outlet Structure Orifice Sizing Calculations

Honeywell International, Inc.
Wastebeds 1-8
Integrated IRM

Stormwater Pollution Prevention Plan

Attachment 3-3
Outlet Structure Orifice Sizing Calculations

Wet Swale Outlet Device (Structure or Check Dam) (See Note 1)	Available Storage Volume (See Appendix 3-4)	Total Water Quality Volume Treated Per Outlet Structure	Avg Release Rate	Orifice Invert Elevation (Set Orifice 6" above bottom of swale)	Center of Orifice Elevation	Avg Head	Orifice Area	Orifice height	Orifice width
	ft^3	ft^3	cfs	ft	ft	ft	ft^2	ft	ft
OS-ES-C	4,798	4,796	2.66	373.5	373.67	0.14	1.47	0.33	4.41
OS-EL-OL	11,624	11,314	6.29	366.5	366.67	1.64	1.02	0.33	3.06
OS-ES-B1	9,024	7,924	4.40	370.0	370.17	0.86	0.99	0.33	2.96
OS-ES-B2	9,289	8,082	4.49	370.0	370.17	0.85	1.01	0.33	3.03
OS-ES-B3	7,138	5,013	2.79	370.0	370.17	0.75	0.67	0.33	2.00
OS-ES-CON	47,420	33,320	18.51	368.5	369.00	1.22	3.47	1.00	3.47
OS-ES-A1	8,064	9,446	5.25	372.0	372.17	0.92	1.14	0.33	3.42
OS-ES-A2	4,037	2,165	1.20	372.0	372.17	0.64	0.31	0.33	0.94
OS-NMC-01	9,335	7,393	4.11	410.0	409.75	0.95	0.88	0.50	1.75
Check Dam #1	Not Applicable	465	See Note 3						
Check Dam #2	Not Applicable	465	See Note 3						
Check Dam #3	Not Applicable	465	See Note 3						
OS-NS-01	22805	11999	6.67	366.0	366.25	0.50	1.95	0.50	3.91

Note 1: Permanent check dams #1, #2 and #3 will consist of an interior of five stone fill to promote detention. Light stone fill will be used for the check dam exterior to promote stabilization.
Note 2: Outlet structure locations are shown on the 95% design drawings.
Note 3: Orifice sizing calculation is not applicable to stone check dam.

Attachment 3-4

Wet Swale Stage Storage Volume Calculations

Honeywell International, Inc.
Wastebeds 1-8
Integrated IRM

Stormwater Pollution Prevention Plan

Attachment 3-4
Wet Swale Stage Storage Volume Calculations

ES-C-1 & ES-C-2 [1]
WET SWALE STAGE STORAGE VOLUME

	ELEVATION WATER (ft)	AREA (ft^2)	AVG. AREA (ft^2)	CHANGE IN ELEV. (ft)	VOLUME (ft^3)	DETENTION STORAGE (ac-ft)	TOTAL STORAGE (ac-ft)
(swale bottom)	373.00	0	-	-	-	0.00	-
	374.00	1,461	731	1.00	731	0.02	0.02
(swale top)	375.00	8,134	4,798	1.00	4,798	0.13	0.13

[1] Refer to Attachment 3-1, Drainage Area Figures, for Wet Swale locations

ES-OL-1 & ES-OL-2 [1]
WET SWALE STAGE STORAGE VOLUME

	ELEVATION WATER (ft)	AREA (ft^2)	AVG. AREA (ft^2)	CHANGE IN ELEV. (ft)	VOLUME (ft^3)	DETENTION STORAGE (ac-ft)	TOTAL STORAGE (ac-ft)
(swale bottom)	366.00	0	-	-	-	0.00	-
	367.00	867	434	1.00	434	0.01	0.01
	368.00	4,527	2,697	1.00	2,697	0.07	0.07
(swale top)	369.00	12,969	8,748	1.00	8,748	0.27	0.27

[1] Refer to Attachment 3-1, Drainage Area Figures, for Wet Swale locations

Honeywell International, Inc.
Wastebeds 1-8
Integrated IRM

Stormwater Pollution Prevention Plan

Attachment 3-4
Wet Swale Stage Storage Volume Calculations

ES-B-1 & ES-B-2 [1]
WET SWALE STAGE STORAGE VOLUME

	ELEVATION WATER (ft)	AREA (ft^2)	AVG. AREA (ft^2)	CHANGE IN ELEV. (ft)	VOLUME (ft^3)	DETENTION STORAGE (ac-ft)	TOTAL STORAGE (ac-ft)
(swale bottom)	369.50	0	-	-	-	0.00	-
	370.50	2,186	1,093	1.00	1,093	0.03	0.03
(swale top)	371.50	13,954	8,070	1.00	8,070	0.21	0.21

[1] Refer to Attachment 3-1, Drainage Area Figures, for Wet Swale locations

ES-B-3 & ES-B-4 [1]
WET SWALE STAGE STORAGE VOLUME

	ELEVATION WATER (ft)	AREA (ft^2)	AVG. AREA (ft^2)	CHANGE IN ELEV. (ft)	VOLUME (ft^3)	DETENTION STORAGE (ac-ft)	TOTAL STORAGE (ac-ft)
(swale bottom)	369.50	0	-	-	-	0.00	-
	370.50	3,384	1,692	1.00	1,692	0.04	0.04
(swale top)	371.50	17,835	10,610	1.00	10,610	0.28	0.28

[1] Refer to Attachment 3-1, Drainage Area Figures, for Wet Swale locations

Honeywell International, Inc.
Wastebeds 1-8
Integrated IRM

Stormwater Pollution Prevention Plan

Attachment 3-4
Wet Swale Stage Storage Volume Calculations

ES-B-5 & ES-B-6 [1]
WET SWALE STAGE STORAGE VOLUME

	ELEVATION WATER (ft)	AREA (ft^2)	AVG. AREA (ft^2)	CHANGE IN ELEV. (ft)	VOLUME (ft^3)	DETENTION STORAGE (ac-ft)	TOTAL STORAGE (ac-ft)
(swale bottom)	369.50	0	-	-	-	0.00	-
	370.50	1,546	773	1.00	773	0.02	0.02
(swale top)	371.50	10,267	5,907	1.00	5,907	0.15	0.15

[1] Refer to Attachment 3-1, Drainage Area Figures, for Wet Swale locations

ES-CON-1 & ES-CON-2 [1]
WET SWALE STAGE STORAGE VOLUME

	ELEVATION WATER (ft)	AREA (ft^2)	AVG. AREA (ft^2)	CHANGE IN ELEV. (ft)	VOLUME (ft^3)	DETENTION STORAGE (ac-ft)	TOTAL STORAGE (ac-ft)
(swale bottom)	368.00	0	-	-	-		-
	369.00	2,492	2,492	1.00	2,492		0.06
	370.00	8,987	5,740	1.00	5,740		0.19
	371.00	19,120	14,054	1.00	14,054	0.32	0.51
(swale top)	372.00	31,149	25,135	1.00	25,135	0.90	1.09

[1] Refer to Attachment 3-1, Drainage Area Figures, for Wet Swale locations

ES-A-1 & ES-A-2 [1]
WET SWALE STAGE STORAGE VOLUME

	ELEVATION WATER (ft)	AREA (ft^2)	AVG. AREA (ft^2)	CHANGE IN ELEV. (ft)	VOLUME (ft^3)	DETENTION STORAGE (ac-ft)	TOTAL STORAGE (ac-ft)
(swale bottom)	371.50	0	-	-	-	0.00	-
	372.50	3,443	1,722	1.00	1,722	0.04	0.04
(swale top)	373.50	9,241	6,342	1.00	6,342	0.19	0.19

[1] Refer to Attachment 3-1, Drainage Area Figures, for Wet Swale locations

ES-A-3 & ES-A-4 [1]
WET SWALE STAGE STORAGE VOLUME

	ELEVATION WATER (ft)	AREA (ft^2)	AVG. AREA (ft^2)	CHANGE IN ELEV. (ft)	VOLUME (ft^3)	DETENTION STORAGE (ac-ft)	TOTAL STORAGE (ac-ft)
(swale bottom)	371.50	0	-	-	-	0.00	-
	372.50	1,477	739	1.00	739	0.02	0.02
(swale top)	373.50	5,120	3,299	1.00	3,299	0.09	0.09

[1] Refer to Attachment 3-1, Drainage Area Figures, for Wet Swale locations

NMC East [1]
WET SWALE STAGE STORAGE VOLUME

	ELEVATION WATER (ft)	AREA (ft^2)	AVG. AREA (ft^2)	CHANGE IN ELEV. (ft)	VOLUME (ft^3)	DETENTION STORAGE (ac-ft)	TOTAL STORAGE (ac-ft)
(swale bottom)	409.00	540	-	-	-	0.00	-
	410.00	2,378	1,459	1.00	1,459	0.03	0.03
	411.00	5,486	3,932	1.00	3,932	0.12	0.12
(swale top)	412.00	13,183	9,335	1.00	9,335	0.34	0.34

[1] Refer to Attachment 3-1, Drainage Area Figures, for Wet Swale locations

NS-OL-2 [1]
WET SWALE STAGE STORAGE VOLUME

	ELEVATION WATER (ft)	AREA (ft^2)	AVG. AREA (ft^2)	CHANGE IN ELEV. (ft)	VOLUME (ft^3)	DETENTION STORAGE (ac-ft)	TOTAL STORAGE (ac-ft)
(swale bottom)	365.50	0	-	-	-	0.00	-
	366.00	2,712	1,356	0.50	678	0.02	0.02
	367.00	8,737	5,725	1.00	5,725	0.15	0.15
(swale top)	368.00	16,008	12,373	1.00	12,373	0.43	0.43

[1] Refer to Attachment 3-1, Drainage Area Figures, for Wet Swale locations

NS-OL-1 [1]
WET SWALE STAGE STORAGE VOLUME

	ELEVATION WATER (ft)	AREA (ft^2)	AVG. AREA (ft^2)	CHANGE IN ELEV. (ft)	VOLUME (ft^3)	DETENTION STORAGE (ac-ft)	TOTAL STORAGE (ac-ft)
(swale bottom)	366.80	0	-	-	-	0.00	-
	367.00	96	48	0.20	10	0.00	0.00
	368.00	2,205	1,151	1.00	1,151	0.03	0.03
(swale top)	369.00	4,751	3,478	1.00	3,478	0.11	0.11

[1] Refer to Attachment 3-1, Drainage Area Figures, for Wet Swale locations

Attachment 3-5

Stage Discharge Calculations

Honeywell International, Inc.
Wastebeds 1-8
Integrated IRM

Stormwater Pollution Prevention Plan

Attachment 3-5
Stage-Discharge Calculations

OUTLET STRUCTURE
OS-ES-C

	Rect. Opening width[1] (ft)= 4.40 Rect. Opening height (ft)= 0.33 INVERT= 373.50		OUTLET STRUCTURE GRATE GRATE SIZE = Syracuse Castings Reticuline No. 11 GRATE ELEVATION = 374.50 PERIMETER (P) (ft.) = 11.25 OPEN AREA (A) (ft^2) = 4.21				
ELEV	HEAD (h_2) (ft)	DISCHARGE Q_1 (cfs)*	HEAD (h) (ft)	WEIR DISCHARGE Q_W (cfs)	ORIFICE DISCHARGE Q_O (cfs)	TOTAL GRATE[2] DISCHARGE $(Q_W+Q_O)/2$ (cfs)	TOTAL OUTLET DISCHARGE $Q_1+(Q_W+Q_O)/2$ (cfs)
373.50	0.0	0.00	0.0	0.00	0.00	0.00	0.0
373.67	0.2	0.98	0.0	0.00	0.00	0.00	1.0
373.83	0.3	2.75	0.0	0.00	0.00	0.00	2.8
374.00	0.25	3.6	0.0	0.00	0.00	0.00	3.6
374.50	0.75	6.3	0.0	0.00	0.00	0.00	6.3
375.00	1.25	8.2	0.5	13.13	14.81	13.97	22.1

$Q_O = Cd*A*(2gh)^{1/2}$ [Orifice Discharge]

Q = Discharge (cfs)
Cd = Coefficient of Discharge (sharp edged orifice = 0.62)
A = Open area of orifice (ft^2)
g = gravity (32.2)
h = Head (ft)

$Q_W = 3.3*P*(h)^{1.5}$ [Weir Discharge]

Q = Discharge (cfs)
P = Perimeter of weir (ft)
h = Head (ft)

NOTE:

[1] The Rectangular Opening width is equal to the two (2) openings in the outlet structure.

[2] Grate discharge = weir for $0 < h < 0.4$
= avg. of weir and orifice for $0.4 < h < 1.4$
= orifice for $h > 1.4$

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Stormwater Pollution Prevention Plan

Attachment 3-5
Stage-Discharge Calculations

OUTLET STRUCTURE
OS-ES-OL

			OUTLET STRUCTURE GRATE GRATE SIZE = Syracuse Castings Reticuline No. 11 GRATE ELEVATION = 368.50 PERIMETER (P) (ft.) = 11.25 OPEN AREA (A) (ft^2) = 4.21				
	Rect. Opening width[1] (ft)= 3.60 Rect. Opening height (ft)= 0.33 INVERT= 366.50					TOTAL GRATE[2] DISCHARGE	TOTAL OUTLET DISCHARGE
ELEV	HEAD (h_2) (ft)	DISCHARGE Q_1 (cfs)*	HEAD (h) (ft)	WEIR DISCHARGE Q_W (cfs)	ORIFICE DISCHARGE Q_O (cfs)	$(Q_W+Q_O)/2$ (cfs)	$Q_1+(Q_W+Q_O)/2$ (cfs)
366.50	0.0	0.00	0.0	0.00	0.00	0.00	0.0
366.67	0.2	0.80	0.0	0.00	0.00	0.00	0.8
366.83	0.3	2.24	0.0	0.00	0.00	0.00	2.2
367.00	0.25	3.0	0.0	0.00	0.00	0.00	3.0
367.50	0.75	5.2	0.0	0.00	0.00	0.00	5.2
368.00	1.25	6.7	0.0	0.00	0.00	0.00	6.7
368.50	1.75	7.9	0.0	0.00	0.00	0.00	14.9
369.00	2.25	9.0	0.5	13.13	14.81	13.97	22.9

$Q_O = Cd*A*(2gh)^{1/2}$ [Orifice Discharge]

Q = Discharge (cfs)
Cd = Coefficient of Discharge (sharp edged orifice = 0.62)
A = Open area of orifice (ft^2)
g = gravity (32.2)
h = Head (ft)

$Q_W = 3.3*P*(h)^{1.5}$ [Weir Discharge]

Q = Discharge (cfs)
P = Perimeter of weir (ft)
h = Head (ft)

NOTE:

[1] The Rectangular Opening width is equal to the two (2) openings in the outlet structure.

[2] Grate discharge = weir for $0 < h < 0.4$
= avg. of weir and orifice for $0.4 < h < 1.4$
= orifice for $h > 1.4$

Honeywell International, Inc.
Wastebeds 1-8
Integrated IRM

Stormwater Pollution Prevention Plan

Attachment 3-5
Stage-Discharge Calculations

OUTLET STRUCTURE
OS-ES-B1

			OUTLET STRUCTURE GRATE				
			GRATE SIZE = Syracuse Castings Reticuline No. 11				
			GRATE ELEVATION = 371.00				
	Rect. Opening width[1] (ft)= 3.50		PERIMETER (P) (ft.) = 11.25				
	Rect. Opening height (ft)= 0.33		OPEN AREA (A) (ft^2) = 4.21			TOTAL	TOTAL
	INVERT= 370.00			WEIR	ORIFICE	GRATE[2]	OUTLET
	HEAD	DISCHARGE	HEAD	DISCHARGE	DISCHARGE	DISCHARGE	DISCHARGE
	(h_2)	Q_1	(h)	Q_W	Q_O	$(Q_W+Q_O)/2$	$Q_1+(Q_W+Q_O)/2$
ELEV	(ft)	(cfs)*	(ft)	(cfs)	(cfs)	(cfs)	(cfs)
370.00	0.0	0.00	0.0	0.00	0.00	0.00	0.0
370.17	0.2	0.78	0.0	0.00	0.00	0.00	0.8
370.33	0.3	2.18	0.0	0.00	0.00	0.00	2.2
370.50	0.25	2.9	0.0	0.00	0.00	0.00	2.9
371.00	0.75	5.0	0.0	0.00	0.00	0.00	12.0
371.50	1.25	6.5	0.5	13.13	14.81	13.97	20.5

$Q_O = Cd*A*(2gh)^{1/2}$ [Orifice Discharge]

Q = Discharge (cfs)
Cd = Coefficient of Discharge (sharp edged orifice = 0.62)
A = Open area of orifice (ft^2)
g = gravity (32.2)
h = Head (ft)

$Q_W = 3.3*P*(h)^{1.5}$ [Weir Discharge]

Q = Discharge (cfs)
P = Perimeter of weir (ft)
h = Head (ft)

NOTE:

[1] The Rectangular Opening width is equal to the two (2) openings in the outlet structure.

[2] Grate discharge = weir for $0 < h < 0.4$
= avg. of weir and orifice for $0.4 < h < 1.4$
= orifice for $h > 1.4$

Honeywell International, Inc.
Wastebeds 1-8
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Attachment 3-5
Stage-Discharge Calculations

OUTLET STRUCTURE
OS-ES-B2

	Rect. Opening width[1] (ft)= 3.60 Rect. Opening height (ft)= 0.33 INVERT= 370.00		OUTLET STRUCTURE GRATE GRATE SIZE = Syracuse Castings Reticuline No. 11 GRATE ELEVATION = 371.00 PERIMETER (P) (ft.) = 11.25 OPEN AREA (A) (ft^2) = 4.21				
ELEV	HEAD (h_2) (ft)	DISCHARGE Q_1 (cfs)*	HEAD (h) (ft)	WEIR DISCHARGE Q_W (cfs)	ORIFICE DISCHARGE Q_O (cfs)	TOTAL GRATE[2] DISCHARGE $(Q_W+Q_O)/2$ (cfs)	TOTAL OUTLET DISCHARGE $Q_1+(Q_W+Q_O)/2$ (cfs)
370.00	0.0	0.00	0.0	0.00	0.00	0.00	0.0
370.17	0.2	0.80	0.0	0.00	0.00	0.00	0.8
370.33	0.3	2.24	0.0	0.00	0.00	0.00	2.2
370.50	0.25	3.0	0.0	0.00	0.00	0.00	3.0
371.00	0.75	5.2	0.0	0.00	0.00	0.00	12.2
371.50	1.25	6.7	0.5	13.13	14.81	13.97	20.6

$Q_O = Cd*A*(2gh)^{1/2}$ [Orifice Discharge]

Q = Discharge (cfs)
Cd = Coefficient of Discharge (sharp edged orifice = 0.62)
A = Open area of orifice (ft^2)
g = gravity (32.2)
h = Head (ft)

$Q_W = 3.3*P*(h)^{1.5}$ [Weir Discharge]

Q = Discharge (cfs)
P = Perimeter of weir (ft)
h = Head (ft)

NOTE:

[1] The Rectangular Opening width is equal to the two (2) openings in the outlet structure.

[2] Grate discharge = weir for $0 < h < 0.4$
= avg. of weir and orifice for $0.4 < h < 1.4$
= orifice for $h > 1.4$

Honeywell International, Inc.
Wastebeds 1-8
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Attachment 3-5
Stage-Discharge Calculations

OUTLET STRUCTURE
OS-ES-B3

	Rect. Opening width[1] (ft)= 2.40 Rect. Opening height (ft)= 0.33 INVERT= 370.00		**OUTLET STRUCTURE GRATE** GRATE SIZE = Syracuse Castings Reticuline No. 11 GRATE ELEVATION = 371.00 PERIMETER (P) (ft.) = 11.25 OPEN AREA (A) (ft^2) = 4.21				
ELEV	HEAD (h_2) (ft)	DISCHARGE Q_1 (cfs)*	HEAD (h) (ft)	WEIR DISCHARGE Q_W (cfs)	ORIFICE DISCHARGE Q_O (cfs)	TOTAL GRATE[2] DISCHARGE $(Q_W+Q_O)/2$ (cfs)	TOTAL OUTLET DISCHARGE $Q_1+(Q_W+Q_O)/2$ (cfs)
370.00	0.0	0.00	0.0	0.00	0.00	0.00	0.0
370.17	0.2	0.53	0.0	0.00	0.00	0.00	0.5
370.33	0.3	1.48	0.0	0.00	0.00	0.00	1.5
370.50	0.25	2.0	0.0	0.00	0.00	0.00	2.0
371.00	0.75	3.4	0.0	0.00	0.00	0.00	3.4
371.50	1.25	4.5	0.5	13.13	14.81	13.97	18.4

$Q_O = Cd*A*(2gh)^{1/2}$ [Orifice Discharge]

Q = Discharge (cfs)
Cd = Coefficient of Discharge (sharp edged orifice = 0.62)
A = Open area of orifice (ft^2)
g = gravity (32.2)
h = Head (ft)

$Q_W = 3.3*P*(h)^{1.5}$ [Weir Discharge]

Q = Discharge (cfs)
P = Perimeter of weir (ft)
h = Head (ft)

NOTE:

[1] The Rectangular Opening width is equal to the two (2) openings in the outlet structure.

[2] Grate discharge = weir for $0 < h < 0.4$
= avg. of weir and orifice for $0.4 < h < 1.4$
= orifice for $h > 1.4$

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Attachment 3-5
Stage-Discharge Calculations

OUTLET STRUCTURE
OS-ES-CON

	Rect. Opening width[1] (ft)= 3.40 Rect. Opening height (ft)= 1.00 INVERT= 368.50		**OUTLET STRUCTURE GRATE** GRATE SIZE = Syracuse Castings Reticuline No. 11 GRATE ELEVATION = 370.50 PERIMETER (P) (ft.) = 11.25 OPEN AREA (A) (ft^2) = 4.21				
ELEV	HEAD (h_2) (ft)	DISCHARGE Q_1 (cfs)*	HEAD (h) (ft)	WEIR DISCHARGE Q_W (cfs)	ORIFICE DISCHARGE Q_O (cfs)	TOTAL GRATE[2] DISCHARGE $(Q_W+Q_O)/2$ (cfs)	TOTAL OUTLET DISCHARGE $Q_1+(Q_W+Q_O)/2$ (cfs)
368.5	0.0	0.00	0.0	0.00	0.00	0.00	0.0
369.00	0.5	3.85	0.0	0.00	0.00	0.00	3.9
369.50	1.0	10.56	0.0	0.00	0.00	0.00	10.6
370.00	1.25	18.9	0.0	0.00	0.00	0.00	18.9
370.50	1.75	22.4	0.0	0.00	0.00	0.00	22.4
371.00	2.3	25.4	0.5	13.13	14.81	13.97	39.3
371.50	2.8	28.1	1.0	37.13	20.95	20.95	49.0
372.00	3.3	30.5	1.5	68.20	25.65	25.65	56.2

$Q_O = Cd*A*(2gh)^{1/2}$ [Orifice Discharge]

Q = Discharge (cfs)
Cd = Coefficient of Discharge (sharp edged orifice = 0.62)
A = Open area of orifice (ft^2)
g = gravity (32.2)
h = Head (ft)

$Q_W = 3.3*P*(h)^{1.5}$ [Weir Discharge]

Q = Discharge (cfs)
P = Perimeter of weir (ft)
h = Head (ft)

NOTE:

[1] The Rectangular Opening width is equal to the two (2) openings in the outlet structure.

[2] Grate discharge = weir for $0 < h < 0.4$
= avg. of weir and orifice for $0.4 < h < 1.4$
= orifice for $h > 1.4$

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Attachment 3-5
Stage-Discharge Calculations

OUTLET STRUCTURE
OS-ES-A1

	Rect. Opening width[1] (ft)= 4.00 Rect. Opening height (ft)= 0.33 INVERT= 372.00		**OUTLET STRUCTURE GRATE** GRATE SIZE = Syracuse Castings Reticuline No. 11 GRATE ELEVATION = 373.00 PERIMETER (P) (ft.) = 11.25 OPEN AREA (A) (ft^2) = 4.21				
ELEV	HEAD (h_2) (ft)	DISCHARGE Q_1 (cfs)*	HEAD (h) (ft)	WEIR DISCHARGE Q_W (cfs)	ORIFICE DISCHARGE Q_O (cfs)	TOTAL GRATE[2] DISCHARGE $(Q_W+Q_O)/2$ (cfs)	TOTAL OUTLET DISCHARGE $Q_1+(Q_W+Q_O)/2$ (cfs)
372.00	0.0	0.00	0.0	0.00	0.00	0.00	0.0
372.17	0.2	0.89	0.0	0.00	0.00	0.00	0.9
372.33	0.3	2.50	0.0	0.00	0.00	0.00	2.5
372.50	0.25	3.3	0.0	0.00	0.00	0.00	3.3
373.00	0.75	5.7	0.0	0.00	0.00	0.00	12.7
373.50	1.25	7.4	0.5	13.13	14.81	13.97	21.4

$Q_O = Cd*A*(2gh)^{1/2}$ [Orifice Discharge]

Q = Discharge (cfs)
Cd = Coefficient of Discharge (sharp edged orifice = 0.62)
A = Open area of orifice (ft^2)
g = gravity (32.2)
h = Head (ft)

$Q_W = 3.3*P*(h)^{1.5}$ [Weir Discharge]

Q = Discharge (cfs)
P = Perimeter of weir (ft)
h = Head (ft)

NOTE:

[1] The Rectangular Opening width is equal to the two (2) openings in the outlet structure.

[2] Grate discharge = weir for $0 < h < 0.4$
= avg. of weir and orifice for $0.4 < h < 1.4$
= orifice for $h > 1.4$

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Attachment 3-5
Stage-Discharge Calculations

OUTLET STRUCTURE
OS-ES-A2

	Rect. Opening width[1] (ft)= 1.20 Rect. Opening height (ft)= 0.33 INVERT= 372.00		OUTLET STRUCTURE GRATE GRATE SIZE = Syracuse Castings Reticuline No. 11 GRATE ELEVATION = 373.00 PERIMETER (P) (ft.) = 11.25 OPEN AREA (A) (ft^2) = 4.21				
ELEV	HEAD (h_2) (ft)	DISCHARGE Q_1 (cfs)*	HEAD (h) (ft)	WEIR DISCHARGE Q_W (cfs)	ORIFICE DISCHARGE Q_O (cfs)	TOTAL GRATE[2] DISCHARGE $(Q_W+Q_O)/2$ (cfs)	TOTAL OUTLET DISCHARGE $Q_1+(Q_W+Q_O)/2$ (cfs)
372.00	0.0	0.00	0.0	0.00	0.00	0.00	0.0
372.17	0.2	0.26	0.0	0.00	0.00	0.00	0.3
372.33	0.3	0.71	0.0	0.00	0.00	0.00	0.7
372.50	0.25	1.0	0.0	0.00	0.00	0.00	1.0
373.00	0.75	1.7	0.0	0.00	0.00	0.00	1.7
373.50	1.3	2.2	0.5	13.13	14.81	13.97	16.2

$Q_O = Cd*A*(2gh)^{1/2}$ [Orifice Discharge]

Q = Discharge (cfs)
Cd = Coefficient of Discharge (sharp edged orifice = 0.62)
A = Open area of orifice (ft^2)
g = gravity (32.2)
h = Head (ft)

$Q_W = 3.3*P*(h)^{1.5}$ [Weir Discharge]

Q = Discharge (cfs)
P = Perimeter of weir (ft)
h = Head (ft)

NOTE:

[1] The Rectangular Opening width is equal to the two (2) openings in the outlet structure.

[2] Grate discharge = weir for $0 < h < 0.4$
= avg. of weir and orifice for $0.4 < h < 1.4$
= orifice for $h > 1.4$

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Attachment 3-5
Stage-Discharge Calculations

OUTLET STRUCTURE
OS-NS

	Rect. Opening width[1] (ft)= 4.00 Rect. Opening height (ft)= 0.50 INVERT= 366.00		OUTLET STRUCTURE GRATE GRATE SIZE = Syracuse Castings Reticuline No. 11 GRATE ELEVATION = 367.41 PERIMETER (P) (ft.) = 11.25 OPEN AREA (A) (ft^2) = 4.21				
ELEV	HEAD (h_2) (ft)	DISCHARGE Q_1 (cfs)*	HEAD (h) (ft)	WEIR DISCHARGE Q_W (cfs)	ORIFICE DISCHARGE Q_O (cfs)	TOTAL GRATE[2] DISCHARGE $(Q_W+Q_O)/2$ (cfs)	TOTAL OUTLET DISCHARGE $Q_1+(Q_W+Q_O)/2$ (cfs)
366.00	0.0	0.00	0.0	0.00	0.00	0.00	0.0
366.25	0.3	1.63	0.0	0.00	0.00	0.00	1.6
366.50	0.5	4.55	0.0	0.00	0.00	0.00	4.6
367.00	0.75	8.6	0.0	0.00	0.00	0.00	8.6
367.41	1.16	10.7	0.0	0.00	0.00	0.00	10.7
368.00	1.75	13.2	0.6	16.82	16.09	16.46	24.1
368.50	2.25	14.9	1.1	42.25	21.87	21.87	36.8
369.00	2.8	16.50	1.6	74.43	26.41	26.41	42.9

$Q_O = Cd*A*(2gh)^{1/2}$ [Orifice Discharge]

Q = Discharge (cfs)
Cd = Coefficient of Discharge (sharp edged orifice = 0.62)
A = Open area of orifice (ft^2)
g = gravity (32.2)
h = Head (ft)

$Q_W = 3.3*P*(h)^{1.5}$ [Weir Discharge]

Q = Discharge (cfs)
P = Perimeter of weir (ft)
h = Head (ft)

NOTE:

[1] The Rectangular Opening width is equal to the two (2) openings in the outlet structure.

[2] Grate discharge = weir for $0 < h < 0.4$
= avg. of weir and orifice for $0.4 < h < 1.4$
= orifice for $h > 1.4$

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Attachment 3-5
Stage-Discharge Calculations

OUTLET STRUCTURE
OS-NMC-01

	OUTLET STRUCTURE GRATE			
	GRATE SIZE = Syracuse Castings Reticuline No. 6			
	GRATE ELEVATION = 411.00			
	PERIMETER (P) (ft.) = 7.32			
	OPEN AREA (A) (ft^2) = 2.45			TOTAL
ELEV	HEAD (h) (ft)	WEIR DISCHARGE Q_W (cfs)	ORIFICE DISCHARGE Q_O (cfs)	GRATE[2] DISCHARGE $(Q_W+Q_O)/2$ (cfs)
411.00	0.0	0.00	0.00	0.00
411.1	0.1	0.76	3.85	0.76
411.50	0.5	8.54	8.62	8.58
412.00	1.0	24.16	12.19	18.17

$Q_O = Cd*A*(2gh)^{1/2}$ [Orifice Discharge]

Q = Discharge (cfs)
Cd = Coefficient of Discharge (sharp edged orifice = 0.62
A = Open area of orifice (ft^2)
g = gravity (32.2)
h = Head (ft)

$Q_W = 3.3*P*(h)^{1.5}$ [Weir Discharge]

Q = Discharge (cfs)
P = Perimeter of weir (ft)
h = Head (ft)

NOTE:

[1] The Rectangular Opening width is equal to the two (2) op

[2] Grate discharge = weir for 0 < h < 0.4
= avg. of weir and orifice for 0.
= orifice for h > 1.4

Attachment 3-6

SCS TR-55 Time of Concentration Computations Report

```
**************************************************
SCS TR-55 Time of Concentration Computations Report
**************************************************

Sheet Flow Equation
-------------------

        Tc = (0.007 * ((n * Lf)^0.8)) / ((P^0.5) * (Sf^0.4))

        Where:

        Tc = Time of Concentration (hrs)
        n  = Manning's Roughness
        Lf = Flow Length (ft)
        P  = 2 yr, 24 hr Rainfall (inches)
        Sf = Slope (ft/ft)

Shallow Concentrated Flow Equation
----------------------------------

        V  = 16.1345 * (Sf^0.5) (unpaved surface)
        V  = 20.3282 * (Sf^0.5) (paved surface)
        V  = 15.0 * (Sf^0.5) (grassed waterway surface)
        V  = 10.0 * (Sf^0.5) (nearly bare & untilled surface)
        V  = 9.0 * (Sf^0.5) (cultivated straight rows surface)
        V  = 7.0 * (Sf^0.5) (short grass pasture surface)
        V  = 5.0 * (Sf^0.5) (woodland surface)
        V  = 2.5 * (Sf^0.5) (forest w/heavy litter surface)
        Tc = (Lf / V) / (3600 sec/hr)

        Where:

        Tc = Time of Concentration (hrs)
        Lf = Flow Length (ft)
        V  = Velocity (ft/sec)
        Sf = Slope (ft/ft)

Channel Flow Equation
---------------------

        V  = (1.49 * (R^(2/3)) * (Sf^0.5)) / n
        R  = Aq / Wp
        Tc = (Lf / V) / (3600 sec/hr)

        Where:

        Tc = Time of Concentration (hrs)
        Lf = Flow Length (ft)
        R  = Hydraulic Radius (ft)
        Aq = Flow Area (ft²)
        Wp = Wetted Perimeter (ft)
        V  = Velocity (ft/sec)
        Sf = Slope (ft/ft)
        n  = Manning's Roughness

------------------------------------
Subbasin Direct Connect Wetland A
------------------------------------
====================================================================================================
        Total TOC (minutes):                        0.00
====================================================================================================


------------------------------------
Subbasin Direct Connect Wetland B
------------------------------------
====================================================================================================
        Total TOC (minutes):                        0.00
====================================================================================================
```

Subbasin Direct Connect Wetland C

Total TOC (minutes):	0.00

Subbasin ES-A-1

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.40	0.00	0.00
Flow Length (ft):	100.00	0.00	0.00
Slope (%):	5.50	0.00	0.00
2 yr, 24 hr Rainfall (in):	2.34	2.60	2.60
Velocity (ft/sec):	0.10	0.00	0.00
Computed Flow Time (minutes):	16.75	0.00	0.00

Shallow Concentrated Flow Computations

	Subarea A	Subarea B	Subarea C
Flow Length (ft):	117.00	0.00	0.00
Slope (%):	11.50	0.00	0.00
Surface Type:	Woodland	Unpaved	Unpaved
Velocity (ft/sec):	1.70	0.00	0.00
Computed Flow Time (minutes):	1.15	0.00	0.00

Total TOC (minutes):	17.90

Subbasin ES-A-2

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.40	0.00	0.00
Flow Length (ft):	100.00	0.00	0.00
Slope (%):	0.80	0.00	0.00
2 yr, 24 hr Rainfall (in):	2.34	2.60	2.60
Velocity (ft/sec):	0.05	0.00	0.00
Computed Flow Time (minutes):	36.23	0.00	0.00

Shallow Concentrated Flow Computations

	Subarea A	Subarea B	Subarea C
Flow Length (ft):	83.00	0.00	0.00
Slope (%):	6.30	0.00	0.00
Surface Type:	Woodland	Unpaved	Unpaved
Velocity (ft/sec):	1.25	0.00	0.00
Computed Flow Time (minutes):	1.11	0.00	0.00

Total TOC (minutes):	37.34

Subbasin ES-A-3

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.40	0.00	0.00
Flow Length (ft):	100.00	0.00	0.00
Slope (%):	27.50	0.00	0.00
2 yr, 24 hr Rainfall (in):	2.34	2.60	2.60

Velocity (ft/sec):	0.19	0.00	0.00
Computed Flow Time (minutes):	8.80	0.00	0.00

Shallow Concentrated Flow Computations

	Subarea A	Subarea B	Subarea C
Flow Length (ft):	81.00	0.00	0.00
Slope (%):	12.90	0.00	0.00
Surface Type:	Woodland	Unpaved	Unpaved
Velocity (ft/sec):	1.80	0.00	0.00
Computed Flow Time (minutes):	0.75	0.00	0.00
Total TOC (minutes):	9.55		

Subbasin ES-A-4

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.40	0.00	0.00
Flow Length (ft):	100.00	0.00	0.00
Slope (%):	34.00	0.00	0.00
2 yr, 24 hr Rainfall (in):	2.34	2.34	2.34
Velocity (ft/sec):	0.21	0.00	0.00
Computed Flow Time (minutes):	8.09	0.00	0.00

Shallow Concentrated Flow Computations

	Subarea A	Subarea B	Subarea C
Flow Length (ft):	51.00	0.00	0.00
Slope (%):	11.70	0.00	0.00
Surface Type:	Woodland	Unpaved	Unpaved
Velocity (ft/sec):	1.71	0.00	0.00
Computed Flow Time (minutes):	0.50	0.00	0.00
Total TOC (minutes):	8.58		

Subbasin ES-B-1

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.40	0.00	0.00
Flow Length (ft):	100.00	0.00	0.00
Slope (%):	1.80	0.00	0.00
2 yr, 24 hr Rainfall (in):	2.34	2.60	2.60
Velocity (ft/sec):	0.06	0.00	0.00
Computed Flow Time (minutes):	26.19	0.00	0.00

Shallow Concentrated Flow Computations

	Subarea A	Subarea B	Subarea C
Flow Length (ft):	141.00	0.00	0.00
Slope (%):	20.00	0.00	0.00
Surface Type:	Woodland	Unpaved	Unpaved
Velocity (ft/sec):	2.24	0.00	0.00
Computed Flow Time (minutes):	1.05	0.00	0.00
Total TOC (minutes):	27.24		

Subbasin ES-B-2

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.40	0.00	0.00
Flow Length (ft):	100.00	0.00	0.00
Slope (%):	64.00	0.00	0.00
2 yr, 24 hr Rainfall (in):	2.34	2.60	2.60
Velocity (ft/sec):	0.27	0.00	0.00
Computed Flow Time (minutes):	6.28	0.00	0.00

Shallow Concentrated Flow Computations

	Subarea A	Subarea B	Subarea C
Flow Length (ft):	60.00	77.00	32.00
Slope (%):	33.30	7.80	31.30
Surface Type:	Woodland	Woodland	Woodland
Velocity (ft/sec):	2.89	1.40	2.80
Computed Flow Time (minutes):	0.35	0.92	0.19

Total TOC (minutes): 7.73

Subbasin ES-B-3

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.40	0.00	0.00
Flow Length (ft):	100.00	0.00	0.00
Slope (%):	64.00	0.00	0.00
2 yr, 24 hr Rainfall (in):	2.34	2.60	2.60
Velocity (ft/sec):	0.27	0.00	0.00
Computed Flow Time (minutes):	6.28	0.00	0.00

Shallow Concentrated Flow Computations

	Subarea A	Subarea B	Subarea C
Flow Length (ft):	61.00	80.00	33.00
Slope (%):	32.80	7.50	30.30
Surface Type:	Woodland	Woodland	Woodland
Velocity (ft/sec):	2.86	1.37	2.75
Computed Flow Time (minutes):	0.36	0.97	0.20

Total TOC (minutes): 7.81

Subbasin ES-B-4

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.40	0.00	0.00
Flow Length (ft):	100.00	0.00	0.00
Slope (%):	5.90	0.00	0.00
2 yr, 24 hr Rainfall (in):	2.34	2.60	2.60
Velocity (ft/sec):	0.10	0.00	0.00
Computed Flow Time (minutes):	16.29	0.00	0.00

Shallow Concentrated Flow Computations

	Subarea A	Subarea B	Subarea C
Flow Length (ft):	106.00	78.00	59.00
Slope (%):	39.70	2.60	16.90
Surface Type:	Woodland	Woodland	Woodland
Velocity (ft/sec):	3.15	0.81	2.06
Computed Flow Time (minutes):	0.56	1.60	0.48

Total TOC (minutes):	18.93

Subbasin ES-B-5

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.40	0.00	0.00
Flow Length (ft):	100.00	0.00	0.00
Slope (%):	12.10	0.00	0.00
2 yr, 24 hr Rainfall (in):	2.34	2.60	2.60
Velocity (ft/sec):	0.14	0.00	0.00
Computed Flow Time (minutes):	12.22	0.00	0.00

Shallow Concentrated Flow Computations

	Subarea A	Subarea B	Subarea C
Flow Length (ft):	86.00	0.00	0.00
Slope (%):	13.80	0.00	0.00
Surface Type:	Woodland	Unpaved	Unpaved
Velocity (ft/sec):	1.86	0.00	0.00
Computed Flow Time (minutes):	0.77	0.00	0.00

Total TOC (minutes):	12.99

Subbasin ES-B-6

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.40	0.00	0.00
Flow Length (ft):	100.00	0.00	0.00
Slope (%):	2.00	0.00	0.00
2 yr, 24 hr Rainfall (in):	2.34	2.60	2.60
Velocity (ft/sec):	0.07	0.00	0.00
Computed Flow Time (minutes):	25.11	0.00	0.00

Shallow Concentrated Flow Computations

	Subarea A	Subarea B	Subarea C
Flow Length (ft):	117.00	119.00	0.00
Slope (%):	26.50	4.20	0.00
Surface Type:	Woodland	Woodland	Unpaved
Velocity (ft/sec):	2.57	1.02	0.00
Computed Flow Time (minutes):	0.76	1.94	0.00

Channel Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.04	0.00	0.00
Flow Length (ft):	168.00	0.00	0.00
Channel Slope (%):	11.30	0.00	0.00
Cross Section Area (ft^2):	4.00	0.00	0.00
Wetted Perimeter (ft):	6.00	0.00	0.00
Velocity (ft/sec):	9.56	0.00	0.00
Computed Flow Time (minutes):	0.29	0.00	0.00

Total TOC (minutes):	28.11

Subbasin ES-C-1

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.40	0.00	0.00
Flow Length (ft):	100.00	0.00	0.00
Slope (%):	12.70	0.00	0.00
2 yr, 24 hr Rainfall (in):	2.34	2.60	2.60
Velocity (ft/sec):	0.14	0.00	0.00
Computed Flow Time (minutes):	11.99	0.00	0.00

Shallow Concentrated Flow Computations

	Subarea A	Subarea B	Subarea C
Flow Length (ft):	109.00	0.00	0.00
Slope (%):	40.30	0.00	0.00
Surface Type:	Woodland	Unpaved	Unpaved
Velocity (ft/sec):	3.17	0.00	0.00
Computed Flow Time (minutes):	0.57	0.00	0.00

Total TOC (minutes): 12.56

Subbasin ES-C-2

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.40	0.00	0.00
Flow Length (ft):	100.00	0.00	0.00
Slope (%):	30.00	0.00	0.00
2 yr, 24 hr Rainfall (in):	2.34	2.60	2.60
Velocity (ft/sec):	0.20	0.00	0.00
Computed Flow Time (minutes):	8.50	0.00	0.00

Shallow Concentrated Flow Computations

	Subarea A	Subarea B	Subarea C
Flow Length (ft):	50.00	60.00	0.00
Slope (%):	8.00	43.30	0.00
Surface Type:	Woodland	Woodland	Unpaved
Velocity (ft/sec):	1.41	3.29	0.00
Computed Flow Time (minutes):	0.59	0.30	0.00

Total TOC (minutes): 9.40

Subbasin ES-CON-1

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.40	0.00	0.00
Flow Length (ft):	100.00	0.00	0.00
Slope (%):	0.30	0.00	0.00
2 yr, 24 hr Rainfall (in):	2.34	2.60	2.60
Velocity (ft/sec):	0.03	0.00	0.00
Computed Flow Time (minutes):	53.63	0.00	0.00

Shallow Concentrated Flow Computations

	Subarea A	Subarea B	Subarea C
Flow Length (ft):	68.00	198.00	0.00
Slope (%):	1.20	13.60	0.00
Surface Type:	Woodland	Woodland	Unpaved
Velocity (ft/sec):	0.55	1.84	0.00
Computed Flow Time (minutes):	2.06	1.79	0.00

Total TOC (minutes):	57.49

Subbasin ES-CON-2

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.40	0.00	0.00
Flow Length (ft):	100.00	0.00	0.00
Slope (%):	1.70	0.00	0.00
2 yr, 24 hr Rainfall (in):	2.34	2.60	2.60
Velocity (ft/sec):	0.06	0.00	0.00
Computed Flow Time (minutes):	26.80	0.00	0.00

Shallow Concentrated Flow Computations

	Subarea A	Subarea B	Subarea C
Flow Length (ft):	130.00	0.00	0.00
Slope (%):	14.10	0.00	0.00
Surface Type:	Woodland	Woodland	Unpaved
Velocity (ft/sec):	1.88	0.00	0.00
Computed Flow Time (minutes):	1.15	0.00	0.00

Total TOC (minutes):	27.95

Subbasin ES-OL-1

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.40	0.00	0.00
Flow Length (ft):	100.00	0.00	0.00
Slope (%):	1.20	0.00	0.00
2 yr, 24 hr Rainfall (in):	2.34	2.60	2.60
Velocity (ft/sec):	0.05	0.00	0.00
Computed Flow Time (minutes):	30.80	0.00	0.00

Shallow Concentrated Flow Computations

	Subarea A	Subarea B	Subarea C
Flow Length (ft):	55.00	67.00	0.00
Slope (%):	1.50	46.30	0.00
Surface Type:	Woodland	Woodland	Unpaved
Velocity (ft/sec):	0.61	3.40	0.00
Computed Flow Time (minutes):	1.50	0.33	0.00

Total TOC (minutes):	32.64

Subbasin ES-OL-2

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.40	0.00	0.00
Flow Length (ft):	100.00	0.00	0.00
Slope (%):	1.40	0.00	0.00
2 yr, 24 hr Rainfall (in):	2.34	2.60	2.60
Velocity (ft/sec):	0.06	0.00	0.00
Computed Flow Time (minutes):	28.96	0.00	0.00

Shallow Concentrated Flow Computations

	Subarea A	Subarea B	Subarea C
Flow Length (ft):	34.00	163.00	0.00
Slope (%):	1.80	19.00	0.00
Surface Type:	Woodland	Woodland	Unpaved
Velocity (ft/sec):	0.67	2.18	0.00
Computed Flow Time (minutes):	0.85	1.25	0.00
Total TOC (minutes):	31.05		

Subbasin NMC 01

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.40	0.00	0.00
Flow Length (ft):	100.00	0.00	0.00
Slope (%):	1.20	0.00	0.00
2 yr, 24 hr Rainfall (in):	2.34	0.00	0.00
Velocity (ft/sec):	0.05	0.00	0.00
Computed Flow Time (minutes):	30.80	0.00	0.00

Shallow Concentrated Flow Computations

	Subarea A	Subarea B	Subarea C
Flow Length (ft):	216.00	0.00	0.00
Slope (%):	0.40	0.00	0.00
Surface Type:	Unpaved	Unpaved	Unpaved
Velocity (ft/sec):	1.02	0.00	0.00
Computed Flow Time (minutes):	3.53	0.00	0.00

Channel Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.30	0.00	0.00
Flow Length (ft):	514.00	0.00	0.00
Channel Slope (%):	0.40	0.00	0.00
Cross Section Area (ft^2):	6.00	0.00	0.00
Wetted Perimeter (ft):	8.47	0.00	0.00
Velocity (ft/sec):	0.25	0.00	0.00
Computed Flow Time (minutes):	34.32	0.00	0.00
Total TOC (minutes):	68.65		

Subbasin NS EAST

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.40	0.00	0.00
Flow Length (ft):	100.00	0.00	0.00
Slope (%):	23.50	0.00	0.00
2 yr, 24 hr Rainfall (in):	2.34	0.00	0.00
Velocity (ft/sec):	0.18	0.00	0.00
Computed Flow Time (minutes):	9.37	0.00	0.00

Shallow Concentrated Flow Computations

	Subarea A	Subarea B	Subarea C
Flow Length (ft):	480.00	0.00	0.00
Slope (%):	3.80	0.00	0.00
Surface Type:	Woodland	Unpaved	Unpaved
Velocity (ft/sec):	0.97	0.00	0.00
Computed Flow Time (minutes):	8.25	0.00	0.00

Total TOC (minutes):	17.62

Subbasin NS MIDDLE

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.40	0.00	0.00
Flow Length (ft):	78.00	0.00	0.00
Slope (%):	4.20	0.00	0.00
2 yr, 24 hr Rainfall (in):	2.34	0.00	0.00
Velocity (ft/sec):	0.08	0.00	0.00
Computed Flow Time (minutes):	15.30	0.00	0.00

Channel Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.30	0.00	0.00
Flow Length (ft):	260.00	0.00	0.00
Channel Slope (%):	6.90	0.00	0.00
Cross Section Area (ft^2):	7.00	0.00	0.00
Wetted Perimeter (ft):	10.30	0.00	0.00
Velocity (ft/sec):	1.01	0.00	0.00
Computed Flow Time (minutes):	4.30	0.00	0.00

Total TOC (minutes):	19.60

Subbasin NS WEST

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.40	0.00	0.00
Flow Length (ft):	100.00	0.00	0.00
Slope (%):	13.00	0.00	0.00
2 yr, 24 hr Rainfall (in):	2.34	0.00	0.00
Velocity (ft/sec):	0.14	0.00	0.00
Computed Flow Time (minutes):	11.88	0.00	0.00

Shallow Concentrated Flow Computations

	Subarea A	Subarea B	Subarea C
Flow Length (ft):	53.00	0.00	0.00
Slope (%):	24.50	0.00	0.00
Surface Type:	Woodland	Unpaved	Unpaved
Velocity (ft/sec):	2.47	0.00	0.00
Computed Flow Time (minutes):	0.36	0.00	0.00

Total TOC (minutes):	12.23

Attachment 4

Pre-Construction Requirements

Pre-Construction Requirements

Instructions to Owner/Operator/Contractor

1. The Owner, Operator and Contractor shall read this Stormwater Pollution Prevention Plan (SWPPP) document to become familiar with all aspects of Stormwater Pollution Prevention associated with this project. This document needs to be kept on file at the work site at all times (*i.e.,* in the work trailer).

2. The Owner, Operator, and Contractor shall read the New York State Department of Environmental Conservation SPDES General Permit for Storm Water Discharges from Construction Activities GP-0-10-001. This SWPPP has been prepared by the Owner to assist the Contractor with substantive compliance with GP-0-10-001. The Contractor must follow the SWPPP and understand that this document constitutes the minimum standards for compliance with GP-0-10-001.

3. In the event of a transfer of ownership or responsibility for stormwater runoff, the original Owner or Operator must notify the new Owner or Operator in writing of the requirement to obtain permit coverage by submitting a new Notice of Intent (NOI). Once the new Owner or Operator obtains permit coverage, the original Owner or Operator shall submit a completed Notice of Termination (NOT) with the name and permit identification number of the new Owner or Operator. If the original Owner or Operator maintains ownership of a portion of the construction activity and will disturb soil, they must obtain coverage under GP-0-10-001. Permit coverage for the new Owner or Operator will be effective as of the date a completed NOI is sent and an acknowledgement letter is received. Provided the original Owner or Operator was not subject to a sixty (60) business day authorization period that has not expired as of the date the Department receives the NOI from the new Owner or Operator.

4. Prior to commencing construction activities, the Owner/Operator/Contractor must complete the forms and certifications herein. This information shall be kept updated.

5. All enclosed certifications shall be completed and each one of the Contractors shall complete their portion of the certification. Each certification is to be completed and signed by a president, treasurer or vice president or any person who performs similar policy or decision making functions and by the on-site individual having responsibility for the firm and each one of the Contractors implementing erosion control measures.

6. Deficiencies noted during any inspection shall be corrected within 24 hours of the inspection.

Pre-Construction Requirements

I. PRE-CONSTRUCTION MEETING DOCUMENTS

Project Name _____
Permit No. _____ Date of NYSDEC Authorization _____
Name of Owner/Operator _____
Prime Contractor _____
Contractors _____

a. Preamble to Site Assessment and Inspections

The following information to be read by all person's involved in the construction of stormwater related activities:

The Owner/Operator agrees to have a qualified inspector[1] conduct an assessment of the site prior to the commencement of construction[2]. The Owner/Operator shall certify in this inspection report that the appropriate erosion and sediment controls described in the SWPPP have been adequately installed and implemented to ensure overall preparedness of the site for the commencement of construction.

When construction starts, the qualified inspector shall conduct at least two site inspections every seven calendar days. There should be a minimum of two full calendar days between inspections. The Owner/Operator shall maintain a record of all inspection reports on site and be made available to the permitting authorities upon request.

Prior to filing the Notice of Termination or the end of permit term, the Owner/Operator shall have a qualified inspector perform a final site inspection. The qualified inspector shall certify that the site has undergone final stabilization[3] using either vegetative or structural stabilization methods and that all temporary erosion and sediment controls (such as silt fencing) not needed for long-term erosion control have been removed.

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[1] "Qualified Inspector" means a person that is knowledgeable in the principles and practices of erosion and sediment control, such as a licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, or other NYSDEC endorsed individual(s). It can also mean someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided that person has training in the principles and practices of erosion and sediment control. Training in the principles and practices of erosion and sediment control means that the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect has received four hours of NYSDEC endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other NYSDEC endorsed entity. After receiving the initial training, the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect shall receive four hours of training every three years.

[2] "Commencement of construction" means the initial disturbance of soils associated with clearing, grading or excavation activities or other construction activities that disturb or expose soils such as demolition or stockpiling of fill material.

[3] "Final stabilization" means that all soil-disturbance activities at the site have ceased and uniform, perennial vegetative cover with a density of eighty (80) percent over the entire pervious surface has been established or equivalent stabilization measures such as permanent landscape mulches, rock rip-rap or washed/crushed stone have been applied on all disturbed areas that are not covered by permanent structures, concrete or pavement.

Pre-Construction Requirements

Pre-construction Site Assessment Checklist
(NOTE: Provide comments below as necessary)

1. Notice of Intent, SWPPP, and Contractors Certification:

Yes	No	NA	
[ ]	[ ]	[ ]	Has a Notice of Intent been filed with an acknowledgement letter received from the NYS Department of Conservation?
[ ]	[ ]	[ ]	Has MS4 Approval Letter (if needed) been received?
[ ]	[ ]	[ ]	Is the SWPPP on-site? Where? _____
[ ]	[ ]	[ ]	Is the Plan current? What is the latest revision date? _____
[ ]	[ ]	[ ]	Is a copy of the NOI (with brief description) on-site: Where? _____
[ ]	[ ]	[ ]	Have all Contractors involved with the stormwater related activities signed a Contractor's Certification?
[ ]	[ ]	[ ]	Has Contractors stabilization/construction sequence been received?

2. Resource Protection

Yes	No	NA	
[ ]	[ ]	[ ]	Are construction limits clearly flagged or fenced? _____
[ ]	[ ]	[ ]	Important trees and associated rooting zones, on-site septic system absorption fields, existing vegetated areas suitable for filter strips, especially in perimeter areas, have been flagged for protection.
[ ]	[ ]	[ ]	Creek crossings installed prior to land-disturbing activity, including clearing and blasting.

3. Surface Water Protection

Yes	No	NA	
[ ]	[ ]	[ ]	Clean stormwater runoff has been diverted from areas to be disturbed.
[ ]	[ ]	[ ]	Bodies of water located either on-site or in the vicinity of the site have been identified and protected.
[ ]	[ ]	[ ]	Appropriate practices to protect on-site or downstream surface water are installed.
[ ]	[ ]	[ ]	Are clearing and grading operations divided into areas <5 acres?

4. Stabilized Construction Entrance

Yes	No	NA	
[ ]	[ ]	[ ]	A temporary construction entrance to capture mud and debris from construction vehicles before they enter the public highway has been installed.
[ ]	[ ]	[ ]	Other access areas (entrances, construction routes, and equipment parking areas) are stabilized immediately as work takes place with gravel or other cover.
[ ]	[ ]	[ ]	Sediment tracked onto public streets is removed or cleaned on a regular basis.

5. Perimeter Sediment Controls

Yes	No	NA	
[ ]	[ ]	[ ]	Silt fence material and installation comply with the standard drawing and specifications.
[ ]	[ ]	[ ]	Silt fences are installed at appropriate spacing intervals.
[ ]	[ ]	[ ]	Sediment/detention basin was installed as first land disturbing activity.
[ ]	[ ]	[ ]	Sediment traps and barriers are installed.

Pre-Construction Requirements

6. Pollution Prevention for Waste and Hazardous Materials

Yes	No	NA	
[ ]	[ ]	[ ]	The Operator or designated representative has been assigned to implement the spill prevention avoidance and response plan.
[ ]	[ ]	[ ]	The plan is contained in the SWPPP on page _____
[ ]	[ ]	[ ]	Appropriate materials to control spills are on-site. Where? _____

b. Qualified Inspector's Credentials and Certification

"I hereby certify that I meet the criteria set forth in the General Permit to conduct site inspections for this project and that the appropriate erosion and sediment controls described in the SWPPP and as described in the following Pre-construction Site Assessment Checklist have been adequately installed or implemented, ensuring the overall preparedness of this site for the commencement of construction"

Name (please print): _____

Title: _____ Date: _____

Address: _____

Phone: _____ Email: _____

Signature: _____

Pre-Construction Requirements

CONTRACTOR'S CERTIFICATION STATEMENT

(Each Contractor involved in soil disturbance is required to sign the certification statement prior to working on-site).

I. SITE INFORMATION

Construction Site Name: _____

Site Location: _____

II. CONTRACTORS INFORMATION

Contracting Firm

Contracting Firm Address

Telephone Number(s)

Contact(s) 1)

2)

3)

Name(s) of Trained Contractor(s) that will be responsible from Contractor's company for implementing the SWPPP:

Name_____Title _____

Name_____Title _____

A trained contractor is an employee of the contracting company that has received four (4) hours of training, which has been endorsed by the Department from a Soil and Water Conservation District, CPESC, Inc. or other Department endorsed entity in proper erosion and sediment control principles. After receiving the initial training, the trained contractor shall receive four (4) hours of training every three (3) years.

III. STORMWATER MEASURES

Contractor is responsible for implementing and maintaining the following stormwater measures:

1.

2.

3.

4.

IV. CERTIFICATION

"I hereby certify that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the qualified inspector during a site inspection. I also understand that the owner or operator must comply with the terms and conditions of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings. I also certify, that I have received a copy of the SWPPP and will retain a copy of such SWPPP on-site during construction"

V. SIGNATURE: _____ DATE

Name (print): _____ Title:

Attachment 5

Inspection Forms

FIELD RECORD COPY

Honeywell International Inc.
Wastebeds 1-8 Integrated IRM
SWPPP MAINTENANCE INSPECTION FORM

Permit No: _____ Inspection #: _____
Name of Inspector: _____ Date/Time of Inspection: _____
Soil Conditions: **WET /DRY /SATURATED/FROZEN** Weather Conditions:_____

Type of Inspection	**Yes**	**No**
1. Initial Inspection		
2. Weekly/Biweekly Inspection		
3. Construction Shutdown Inspection		
4. Final Inspection:		
a. Has the site undergone final stabilization?		
b. Have all temporary ESC facilities been removed?		

(Edit Checklist below for Project Specifics)

Project Checklist (indicate Areas of concern on the attached map)	**Yes**	**No**	**N/A**
Erosion and Sediment Controls:			
1. Is there any evidence of sediment leaving the site?			
2. Are silt fences in good condition and free from visible signs of erosion (____% sediment buildup)?			
3. Are construction access/egress points stabilized?			
4. Are vehicles and equipment being washed down in a stabilized area?			
5. Are riprap/mat aprons free of debris?			
6. Are swales functioning properly and free of debris and scour/erosion?			
7. Are dust control measures being applied as needed?			
8. Are check dams functioning as designed and free of debris? (___% sediment buildup)			
9. Are filter bags installed and functioning as designed? (___% sediment buildup)			
10. Are trenching/boring operations proceeding without impact to adjacent waters?			
11. Are inlet protections in place and functioning properly?			
12. Are water inflated dams in place and functioning properly?			
13. Are discharge points functioning as designed and free of debris and scour/erosion?			
Stabilization Practices:			
14. Have all disturbed portions of the site where earth disturbing activities have ceased and will not resume within 7 days been temporarily stabilized by covering with plastic, mulching, or by mulching and seeding?			
15. Have all disturbed portions of the site where earth disturbing activities have permanently ceased been stabilized with permanent measures?			
Additional Storm Water Controls:			
16. Are material storage/handling areas properly stabilized?			
17. Are concrete disposal areas being properly utilized?			
18. Is there any evidence of spills or leaks from vehicles/equipment?			
19. Are vehicles and equipment being cleaned before exiting the site?			

FIELD RECORD COPY

FIELD RECORD COPY

Honeywell International Inc.
Wastebeds 1-8 Integrated IRM
SWPPP MAINTENANCE INSPECTION FORM

List Disturbed Areas	Stabilized Yes	Stabilized No
1.		
2.		
3.		

Work Performed Since Last Inspection & Effectiveness of Corrective Actions: _____

Comments on General Site Conditions (see attached ESC Plan): _____

Remarks/Recommendations*: _____

Condition of Runoff at Discharge Points (Attach photo of each):_____

PLEASE SEE ATTACHED MAP AND PHOTOS FOR LOCATIONS AND ILLUSTRATION

Inspector: _____ **Training #:** _____ **Date:** _____
Signature of Inspector

Reviewed: _____ **Training #:** _____ **Date:** _____
Qualified Professional

FIELD RECORD COPY

Attachment 6

Contract Documents

(bound separately)

Attachment 7

SPDES Notice of Termination

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505
(NOTE: Submit completed form to address above)

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity

Please indicate your permit identification number: NYR ___ ___ ___ ___ ___ ___

I. Owner or Operator Information

1. Owner/Operator Name:

2. Street Address:

3. City/State/Zip:

4. Contact Person: | 4a.Telephone:

5. Contact Person E-Mail:

II. Project Site Information

5. Project/Site Name:

6. Street Address:

7. City/Zip:

8. County:

III. Reason for Termination

9a. ☐ All disturbed areas have achieved final stabilization in accordance with the general permit and SWPPP.
***Date final stabilization completed** (month/year): _____

9b. ☐ Permit coverage has been transferred to new owner/operator. Indicate new owner/operator's permit identification number: NYR ___ ___ ___ ___ ___ ___
(Note: Permit coverage can not be terminated by owner identified in I.1. above until new owner/operator obtains coverage under the general permit)

9c. ☐ Other (Explain on Page 2)

IV. Final Site Information:

10a. Did this construction activity require the development of a SWPPP that includes post-construction stormwater management practices? ☐ yes ☐ no (If no, go to question 10f.)

10b. Have all post-construction stormwater management practices included in the final SWPPP been constructed? ☐ yes ☐ no (If no, explain on Page 2)

10c. Identify the entity responsible for long-term operation and maintenance of practice(s)?

_____

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10d. Has the entity responsible for long-term operation and maintenance been given a copy of the operation and maintenance plan required by the general permit? ☐ yes ☐ no

10e. Indicate the method used to ensure long-term operation and maintenance of the post-construction stormwater management practice(s):

☐ Post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain practice(s) have been deeded to the municipality.

☐ Executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s).

☐ For post-construction stormwater management practices that are privately owned, the deed of record has been modified to include a deed covenant that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan.

☐ For post-construction stormwater management practices that are owned by a public or private institution (e.g. school, college, university), or government agency or authority, policy and procedures are in place that ensures operation and maintenance of the practice(s) in accordance with the operation and maintenance plan.

10f. Provide the total area of impervious surface (i.e. roof, pavement, concrete, gravel, etc.) constructed within the disturbance area? _____ (acres)

11. Is this project subject to the requirements of a regulated, traditional land use control MS4? ☐ yes ☐ no
(If Yes, complete section VI - "MS4 Acceptance" statement

V. Additional Information/Explanation:
(Use this section to answer questions 9c. and 10b., if applicable)

VI. MS4 Acceptance - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative (Note: Not required when 9b. is checked -transfer of coverage)

I have determined that it is acceptable for the owner or operator of the construction project identified in question 5 to submit the Notice of Termination at this time.

Printed Name:

Title/Position:

Signature:	Date:

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VII. Qualified Inspector Certification - Final Stabilization:	
I hereby certify that all disturbed areas have achieved final stabilization as defined in the current version of the general permit, and that all temporary, structural erosion and sediment control measures have been removed. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.	
Printed Name:	
Title/Position:	
Signature:	Date:
VIII. Qualified Inspector Certification - Post-construction Stormwater Management Practice(s):	
I hereby certify that all post-construction stormwater management practices have been constructed in conformance with the SWPPP. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.	
Printed Name:	
Title/Position:	
Signature:	Date:
IX. Owner or Operator Certification	
I hereby certify that this document was prepared by me or under my direction or supervision. My determination, based upon my inquiry of the person(s) who managed the construction activity, or those persons directly responsible for gathering the information, is that the information provided in this document is true, accurate and complete. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.	
Printed Name:	
Title/Position:	
Signature:	Date:

(NYS DEC Notice of Termination - January 2010)

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