EXHIBIT 4

NOTICE LIST RECIPIENTS

	A	B	C	D
1	**Owner of Record**	**Owner's Mailing Address**	**Property Location**	**Property ID**
2	EXIT 88 HOTEL LLC EXIT 88 OFFICES LLC	914 HARTFORD TURNPIKE, WATERFORD, CT 06385	Prop.: 625 North Road; Unit A1 Prop.: 625 North Road; Unit A2 Prop.: 625 North Road; Unit B1 Prop.: 625 North Road; Unit B2	169916940668 00A1 169916940668 00A2 169916940668 00B1 169916940668 00B2
3	115 POHEGANUT DRIVE LLC	P.O. BOX 1637, WESTERLY, RI 02891	Prop.: 115 Poheganut Drive	169916945378
4	CITY OF GROTON	P.O. Box 820, Groton, CT 06340	Prop.: 0 Hazelnut Hill Road	169916828795 E
5	CITY OF GROTON	P.O. Box 820, Groton, CT 06340	Prop.: 0 North Road	169920812360 E
6	TOWN OF GROTON	45 Fort Hill Road, Groton, CT 06340	Prop.: 0 North Road	169920801654 E
7	STEDFAST BAPTIST CHURCH, INC.	256 North Road, Groton, CT 06340	Prop.: 256 North Road	169920705230 E
8	RODGERS, LAUREL J.	196 North Road, Groton, CT 06430	Prop.: 196 North Road	169807792958
9	BEAMAN, ROBERT F.	187 North Road, Groton, CT 06430	Prop.: 187 North Road	169807793511
10	CROWE, RANDI J. & CARROCA, NORBERT	180 North Road, Groton, CT 06430	Prop.: 180 North Road	169807791566
11	TOWN OF GROTON	45 Fort Hill Road, Groton, CT 06340	Prop.: 0 North Road	169807794225 E
12	TADROS, ASHRAF	17 Wayne Road, Groton, CT 06340	Prop.: 173 North Road	169807791328
13	CARON, BRUCE R. & BARBARA S.	169 North Road, Groton, CT 06430	Prop.: 169 North Road	169807791310
14	MESSINA, LUCRETIA MICHELLE	168 North Road, Groton, CT 06430	Prop.: 168 North Road	169807790417
15	TOWN OF GROTON	45 Fort Hill Road, Groton, CT 06340	Prop.: 0 North Road	169807790529 E
16	CITY OF GROTON	P.O. Box 820, Groton, CT 06340	Prop.: 130 North Road	169807698578 E
17	JOHNSON, TODD	144 North Road, Groton, CT 06340	Prop.: 144 North Road	169807698411
18	JENSEN, LESLIE	149 North Road, Groton, CT 06430	Prop.: 149 North Road	169807698271
19	MADDEN, DANIEL	40 Pearl Street, Mystic, CT 06355	Prop.: 141 North Road	169807698008
20	GREGORY, LEON L.	115 North Road, Groton, CT 06430	Prop.: 115 North Road	169807697023
21	GRAY, BEVERLY	110 North Road, Groton, CT 06430	Prop.: 110 North Road	169807685983
22	SHANK, PATRICK L. & DONNA M.	16 Trent Lane, Groton, CT 06430	Prop.: 16 Trent Lane	169807684886
23	MAULTSBY, ELSIE C.	22 Trent Lane, Groton, CT 06430	Prop.: 22 Trent Lane	169807684816
24	PRAY, HERBERT R., JR.	71 Midway Oval, Groton, CT 06340	Prop.: 30 Trent Lane	169807683835
25	CITY OF GROTON	P.O. Box 820, Groton, CT 06340	Prop.: 0 North Road	169807681783 E
26	CITY OF GROTON FILTRATION PLANT	P.O. Box 820, Groton, CT 06340	Prop.: 1268 Poquonnock Road	169807584778 E
27	1154 POQUONNOCK ROAD, LLC	c/o Steve Kitts, 3 Beckwith Road, Haddam, CT 06438	Prop.: 1154 Poquonnock Road	169806485202
28	SMITH LAKE CEMETERY ASSOC.	c/o Greg Johnson, 71 North Road, Groton, CT 06430	Prop.: 1220 Poquonnock Road	169806485743 E
29	PALMER, LEWIS V.	68-1 BUDDINGTON RD, Groton, CT 06340	Prop.: 68 Buddington Road	169806480857 68-1
30	GRANT, KIMBERLY	68-2 BUDDINGTON RD, Groton, CT 06340	Prop.: 68 Buddington Road	169806480857 68-2
31	LYNCH, LOUISE P.	68-3 BUDDINGTON RD, Groton, CT 06340	Prop.: 68 Buddington Road	169806480857 68-3
32	JOHN, PAPPAN & DAISY & JOHNSON, JOHN	68-4 BUDDINGTON RD, Groton, CT 06340	Prop.: 68 Buddington Road	169806480857 68-4
33	HARPSTREIT, JESSICA A.	68-5 BUDDINGTON RD, Groton, CT 06340	Prop.: 68 Buddington Road	169806480857 68-5
34	METSIOS, PAUL	68-6 BUDDINGTON RD, Groton, CT 06340	Prop.: 68 Buddington Road	169806480857 68-6
35	RIVADENEIRA, CRISTINA	1 HARTFORD CT, Groton, CT 06340	Prop.: 68 Buddington Road	169806480857 68-7
36	SMITH, ALEXIS S.	68-8 BUDDINGTON RD, Groton, CT 06340	Prop.: 68 Buddington Road	169806480857 68-8
37	BLAKE, JOANNA A.	70-1 BUDDINGTON RD, Groton, CT 06340	Prop.: 70 Buddington Road	169806480857 70-1
38	BASILE, FRANK & CATHERINE L.	14 DOGWOOD LA, Succasunna, NJ 07876	Prop.: 70 Buddington Road	169806480857 70-2
39	MYSTIC BUILDING COMPANY, LLC	133 HIGH MEADOW LA, Mystic, CT 06355	Prop.: 70 Buddington Road	169806480857 70-3
40	JAMON, RICARDO	70-4 BUDDINGTON RD, Groton, CT 06340	Prop.: 70 Buddington Road	169806480857 70-4
41	HOBSON, PETER N. & ROSANNE S.	70-5 BUDDINGTON RD, Groton, CT 06340	Prop.: 70 Buddington Road	169806480857 70-5
42	GOUETTE, CHRISTOPHER A.	234 CLAY HILL RD, Cape Neddick, ME 03902	Prop.: 70 Buddington Road	169806480857 70-6
43	BONNASSIEUX, ALEXANDRE P.	70-7 BUDDINGTON RD, Groton, CT 06340	Prop.: 70 Buddington Road	169806480857 70-7
44	GREGORY, SCOTT E.	70-8 BUDDINGTON RD, Groton, CT 06340	Prop.: 70 Buddington Road	169806480857 70-8
45	ZITO, AMANDA M.	72-1 BUDDINGTON RD, Groton, CT 06340	Prop.: 72 Buddington Road	169806480857 72-1
46	BECHT, RUSSELL H., II & CHRISTINE M.	72-2 BUDDINGTON RD, Groton, CT 06340	Prop.: 72 Buddington Road	169806480857 72-2
47	MAIN, MARK E. & FILIPIAK, KATHY BERTHA	72-3 BUDDINGTON RD, Groton, CT 06340	Prop.: 72 Buddington Road	169806480857 72-3
48	RUSH, HELEN D.	72-4 BUDDINGTON RD, Groton, CT 06340	Prop.: 72 Buddington Road	169806480857 72-4
49	DELAIN, BRENDA	72-5 BUDDINGTON RD, Groton, CT 06340	Prop.: 72 Buddington Road	169806480857 72-5
50	BRUNO, VINCENT J.	72-6 BUDDINGTON RD, Groton, CT 06340	Prop.: 72 Buddington Road	169806480857 72-6

NOTICE LIST RECIPIENTS

	A	B	C	D
1	Owner of Record	Owner's Mailing Address	Property Location	Property ID
51	HAYES, SHEILA L. & DAUPHIN, RYAN M.	72-7 BUDDINGTON RD, Groton, CT 06340	Prop.: 72 Buddington Road	169806480857 72-7
52	SHI, FENGYING & GE, XIAOZHONG	72-8 BUDDINGTON RD, Groton, CT 06340	Prop.: 72 Buddington Road	169806480857 72-8
53	CURLEY, NITA R.	74-1 BUDDINGTON RD, Groton, CT 06340	Prop.: 74 Buddington Road	169806480857 74-1
54	STAMATIEN, JASON A.	74-2 BUDDINGTON RD, Groton, CT 06340	Prop.: 74 Buddington Road	169806480857 74-2
55	CASTRO, FRANK	74-3 BUDDINGTON RD, Groton, CT 06340	Prop.: 74 Buddington Road	169806480857 74-3
56	BURNBAUM, MARIAN C & THOMAS, RON	74-4 BUDDINGTON RD, Groton, CT 06340	Prop.: 74 Buddington Road	169806480857 74-4
57	AU, RICKY W.	65 ENSIGN DR, Mystic, CT 06355	Prop.: 74 Buddington Road	169806480857 74-5
58	KAISER, EVELYN M., TRUSTEE	4280 GALT OCEAN DR APT 14L, Fort Lauderdale, FL 33308	Prop.: 74 Buddington Road	169806480857 74-6
59	CHESTER, SANDRA L.	74-7 BUDDINGTON RD, Groton, CT 06340	Prop.: 74 Buddington Road	169806480857 74-7
60	HUGHES, RONALD E., JR.	74-8 BUDDINGTON RD, Groton, CT 06340	Prop.: 74 Buddington Road	169806480857 74-8
61	STANLEY, RYAN M.	21 JAMES AVE, Quaker Hill, CT 06375	Prop.: 76 Buddington Road	169806480857 76-1
62	ALBIN, THOMAS J.	211 GREENHAVEN RD, Pawcatuck, CT 06379	Prop.: 76 Buddington Road	169806480857 76-2
63	PERETZ, LEON L.	76-3 BUDDINGTON RD, Groton, CT 06340	Prop.: 76 Buddington Road	169806480857 76-3
64	DUHAIME, NANCY A. & LAROSE, ROGER JR.	76-4 BUDDINGTON RD, Groton, CT 06340	Prop.: 76 Buddington Road	169806480857 76-4
65	GIACOMAZZO, CHRISTOPHER	76-5 BUDDINGTON RD, Groton, CT 06340	Prop.: 76 Buddington Road	169806480857 76-5
66	SCHLOEMER, JUNE I. & HOWARD H. TRUSTEES	12 LAUREL HILL DR S, Niantic, CT 06357	Prop.: 76 Buddington Road	169806480857 76-6
67	DEUTSCHE BANK NATIONAL TRUST COMP. TRUSTEE	1661 WORTHINGTON RD STE 100, West Palm Beach, FL 33409	Prop.: 76 Buddington Road	169806480857 76-7
68	GREANEY, CHRIS M. & SCHALLER, BRITTANY J.	76-8 BUDDINGTON RD, Groton, CT 06340	Prop.: 76 Buddington Road	169806480857 76-8
69	WALKER, JEFFREY A.	16 SHANTOK HEIGHTS, Uncasville, CT 06382	Prop.: 78 Buddington Road	169806480857 78-1
70	ROY, DEBORAH A.	78-2 BUDDINGTON RD, Groton, CT 06340	Prop.: 78 Buddington Road	169806480857 78-2
71	GOODRICH, PAULA	595 BUDDINGTON RD, Groton, CT 06340	Prop.: 78 Buddington Road	169806480857 78-3
72	AGUIAR, STEVEN P.	78-4 BUDDINGTON RD, Groton, CT 06340	Prop.: 78 Buddington Road	169806480857 78-4
73	RODRIGUEZ, YSIDRA A.	78-5 BUDDINGTON RD, Groton, CT 06340	Prop.: 78 Buddington Road	169806480857 78-5
74	JASTREMSKI, SUSAN L.	8 BEVERLY RD, Niantic, CT 06357	Prop.: 78 Buddington Road	169806480857 78-6
75	BROWN, KENNETH R. & MAUREEN B.	1691 NORWICH NEW LONDON TPKE C8, Uncasville, CT 06382	Prop.: 78 Buddington Road	169806480857 78-7
76	OSSWALD, ELIZABETH A.	78-8 BUDDINGTON RD, Groton, CT 06340	Prop.: 78 Buddington Road	169806480857 78-8
77	KOLLWITZ, JENNIFER L.	80-1 BUDDINGTON RD, Groton, CT 06340	Prop.: 80 Buddington Road	169806480857 80-1
78	KIELY, MARY C., TRUSTEE	3 CARLISLE LA, Niantic, CT 06357	Prop.: 80 Buddington Road	169806480857 80-2
79	TUMICKI, STEVEN B.	80-3 BUDDINGTON RD, Groton, CT 06340	Prop.: 80 Buddington Road	169806480857 80-3
80	BURNS, ANDE P.	80-4 BUDDINGTON RD, Groton, CT 06340	Prop.: 80 Buddington Road	169806480857 80-4
81	LINDER, GLENN S.	80-5 BUDDINGTON RD, Groton, CT 06340	Prop.: 80 Buddington Road	169806480857 80-5
82	SU, CHIH-WU & CHAING-PIN	329 CHESTERFIELD RD, East Lyme, CT 06333	Prop.: 80 Buddington Road	169806480857 80-6
83	GONTCHAROVA, NATALIA V.	80-7 BUDDINGTON RD, Groton, CT 06340	Prop.: 80 Buddington Road	169806480857 80-7
84	OLATUBOSUN, BRIAN K.	80-8 BUDDINGTON RD, Groton, CT 06340	Prop.: 80 Buddington Road	169806480857 80-8
85	CHAMPLIN, JAMES D.	82-1 BUDDINGTON RD, Groton, CT 06340	Prop.: 82 Buddington Road	169806480857 82-1
86	LAMB, STEPHEN R. & JOHANNA C.	82-2 BUDDINGTON RD, Groton, CT 06340	Prop.: 82 Buddington Road	169806480857 82-2
87	DURKEE, ANGELA M.	82-3 BUDDINGTON RD, Groton, CT 06340	Prop.: 82 Buddington Road	169806480857 82-3
88	MALLETT, LOUIS C., JR & JAIME	82-4 BUDDINGTON RD, Groton, CT 06340	Prop.: 82 Buddington Road	169806480857 82-4
89	EINHORN, ADAM	82-5 BUDDINGTON RD, Groton, CT 06340	Prop.: 82 Buddington Road	169806480857 82-5
90	CONNOLLY, MARY	PO BOX 384, Groton, CT 06340	Prop.: 82 Buddington Road	169806480857 82-6
91	COOPER, WENDELYN D.	82 BUDDINGTON RD UNIT 7, Groton, CT 06340	Prop.: 82 Buddington Road	169806480857 82-7
92	CALIGIURI, CHRISTINE	163 IRON ST, Ledyard, CT 06339	Prop.: 82 Buddington Road	169806480857 82-8
93	WATERMAN, CAROL F. & HOLDEN T.	2919 QUAIL RUN DR, Humble, TX 77396	Prop.: 84 Buddington Road	169806480857 84-1
94	HIGGS, JOHN J. & CHERYL A.	970 PLAINS RD, West Kingston, RI 02892	Prop.: 84 Buddington Road	169806480857 84-2
95	FOLLETT, BARBARA J.	428 BOSTON POST RD, Waterford, CT 06385	Prop.: 84 Buddington Road	169806480857 84-3
96	HALL, ROBERT C.	662 GROTON LONG POINT RD, Groton, CT 06340	Prop.: 84 Buddington Road	169806480857 84-4
97	BERNAL, JOHN & JAN	84-5 BUDDINGTON RD, Groton, CT 06340	Prop.: 84 Buddington Road	169806480857 84-5
98	BIRCHALL, PATRICK F.	84-6 BUDDINGTON RD, Groton, CT 06430	Prop.: 84 Buddington Road	169806480857 84-6
99	HOYT, TARA M. & SARA M.	26 ENSIGN DR, Mystic, CT 06355	Prop.: 84 Buddington Road	169806480857 84-7

NOTICE LIST RECIPIENTS

	A	B	C	D
1	Owner of Record	Owner's Mailing Address	Property Location	Property ID
150	RATHBUN, TERRY R., SR.	301 BUDDINGTON RD LOT 8, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M008
151	STILLWELL, DAVID	301 BUDDINGTON RD LOT 9, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M009
152	REAGAN, KEVIN & GRASMICK GEER, DONNA	301 BUDDINGTON RD LOT 45, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M045
153	FINNEGAN, GARRY & JUDY	301 BUDDINGTON RD LOT 46, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M046
154	TRAYLOR, ROBERT L.	301 BUDDINGTON RD LOT 47, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M047
155	PARKWOOD HOMES, LLC	PO BOX 151, West Mystic, CT 06388	Prop.: 301 Buddington Road	169918301735 M048
156	COFFEY, DOROTHY (DECD)	PO BOX 624, New York, NY 10150	Prop.: 301 Buddington Road	169918301735 M049
157	LESSARD, DONNA A.	301 BUDDINGTON RD LOT 50, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M050
158	MARTELL, ROBERT L	301 BUDDINGTON RD LOT 51, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M051
159	KENYON, DANIEL WILLIAM	301 BUDDINGTON RD LOT 52, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M052
160	NICHOLS, EDWARD G.	301 BUDDINGTON RD LOT 53, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M053
161	BLACKBURN, GORDON W.	PO BOX 367, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M054
162	MITCHELL, PATRICIA A.	301 BUDDINGTON RD LOT 44, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M044
163	BARNUM, GRACE L.	301 BUDDINGTON RD LOT 43, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M043
164	CHAPMAN, MARY	301 BUDDINGTON RD LOT 42, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M042
165	CONNOLLY, WILLIAM	301 BUDDINGTON RD LOT 41, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M041
166	BRISTOL, BRIAN & MARILYN & SHAWN	24 PHEASANT DR, Middletown, CT 06457	Prop.: 301 Buddington Road	169918301735 M040
167	KENNAUGH, DONALD	301 BUDDINGTON RD LOT 39, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M039
168	DUPONT, CATHERINE E.	301 BUDDINGTON RD LOT 38, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M038
169	ANTHONY, VICKIE M.	334 HOLYOKE LN, Chesapeake, VA 23320	Prop.: 301 Buddington Road	169918301735 M037
170	VAILL, NANCY M.	301 BUDDINGTON RD LOT 36, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M036
171	WHITE, MARY E.	301 BUDDINGTON RD LOT 13, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M013
172	CAMPOS, FAUSTO	301 BUDDINGTON RD LOT 14, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M014
173	BATON, LEWIS R., SR. & SHIRLEY M.	301 BUDDINGTON RD LOT 15, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M015
174	CHAPMAN, SHELLEY A.	301 BUDDINGTON RD LOT 15A, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M151 / labeled as #151 on map
175	IRVING, ALFRED	301 BUDDINGTON RD LOT 35, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M035
176	HOPKINS, ANDREW W.	301 BUDDINGTON RD LOT 34, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M034
177	JOHNSON, DEXTER A.	301 BUDDINGTON RD LOT 33, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M033
178	ELLIS, JEAN	301 BUDDINGTON RD LOT 32, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M032
179	KRUEGER, KATHRYN A.	301 BUDDINGTON RD LOT 16A, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M161 / labeled as #32 on map
180	PERRY, MICHAEL & SUSAN	301 BUDDINGTON RD LOT 16, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M016
181	GO, JACOB R. & JAMES W. & KNOWLES, HANNAH M.	101 CONNECTICUT BLVD, Oakdale, CT 06370	Prop.: 301 Buddington Road	169918301735 M017
182	MORSE, MICHAEL J.	301 BUDDINGTON RD LOT 18, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M018
183	PARKWOOD HOMES, LLC	PO BOX 151, West Mystic, CT 06388	Prop.: 301 Buddington Road	169918301735 M019
184	SKINNER, SCOTT	301 BUDDINGTON RD LOT 20, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M020
185	CHACE, JUDITH A.	301 BUDDINGTON RD LOT 21, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M021
186	STANOWICZ, GARY N.	301 BUDDINGTON RD LOT 22, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M022
187	SCHOENWETTER, JAMES C. & HOPE A.	301 BUDDINGTON RD LOT 23, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M023
188	CUNNINGHAM, PATRICIA, ET AL.	21 BERKELEY AVE, New London, CT 06320	Prop.: 301 Buddington Road	169918301735 M024
189	PARWOOD HOMES, LLC	153 NEPTUNE DR, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M025
190	GRUDZINSKI, RICHARD	301 BUDDINGTON RD LOT 26, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M026
191	KITCHENS, JOHN T.	301 BUDDINGTON RD LOT 27, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M027
192	ARICO, JAMES A.	301 BUDDINGTON RD LOT 28, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M028
193	BROMLEY, SINA A.	PO BOX 680, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M029
194	FRANK, MARIANNA	301 BUDDINGTON RD LOT 30, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M030
195	EASTWOOD, LLC	PO BOX 151, West Mystic, CT 06388	Prop.: 301 Buddington Road	169918301735 / labeled as 295 on map
196	Winterfell Windham Falls (CT) Owner, LLC	399 Park Avenue, 18th Floor, New York, NY 10022	Prop.: 425 Drozdyk Drive	169918312741
197	HODGES, FRANKLIN E. & LYNN S.	327 Buddington Road, Groton, CT 06340	Prop.: 333 Buddington Road	169918317110
198	RICKARD, CLARENCE D. & MARYJANE	341 Buddington Road, Groton, CT 06340	Prop.: 341 Buddington Road	169918317210

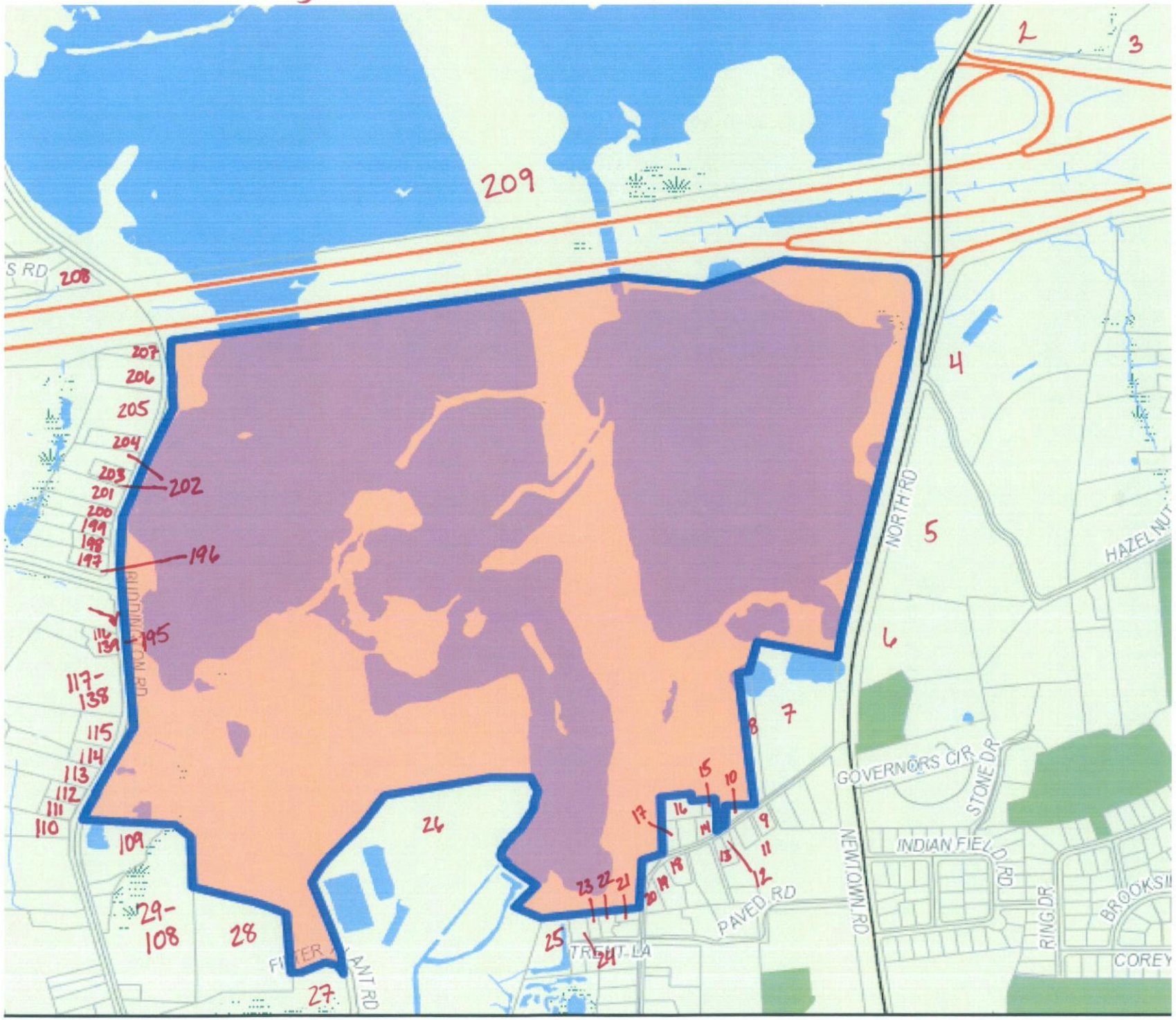
NOTICE LIST RECIPIENTS

	A	B	C	D
1	**Owner of Record**	**Owner's Mailing Address**	**Property Location**	**Property ID**
100	HARNISH, NANCY J.	84-8 BUDDINGTON RD, Groton, CT 06340	Prop.: 84 Buddington Road	169806480857 84-8
101	BLANK, ROBERT G.	86-1 BUDDINGTON RD, Groton, CT 06340	Prop.: 86 Buddington Road	169806480857 86-1
102	WOLLMAN, PHYLLIS & MIRLES, NANCY	86-2 BUDDINGTON RD, Groton, CT 06340	Prop.: 86 Buddington Road	169806480857 86-2
103	LARRIVEE, LISA	86-3 BUDDINGTON RD, Groton, CT 06340	Prop.: 86 Buddington Road	169806480857 86-3
104	THOMAS, LARRY W. & ELAINE L.	86-4 BUDDINGTON RD, Groton, CT 06340	Prop.: 86 Buddington Road	169806480857 86-4
105	CASSIDY, PATRICK J.	86-5 BUDDINGTON RD, Groton, CT 06340	Prop.: 86 Buddington Road	169806480857 86-5
106	EVERED, JUNE I.	86-6 BUDDINGTON RD, Groton, CT 06340	Prop.: 86 Buddington Road	169806480857 86-6
107	DOLLAR, KATHERINE & CHRISTOPHER	340 WINTHROP DR, Fishers Island, CT 06390	Prop.: 86 Buddington Road	169806480857 86-7
108	CHEN, YUN & JI, CHANGHUA	86-8 BUDDINGTON RD, Groton, CT 06340	Prop.: 86 Buddington Road	169806480857 86-8
109	L & G GROUP, LLC	15203 Peach Orchard Road, Silver Spring, MD 20905	Prop.: 140 Buddington Road	169806398354
110	PARKWOOD HOMES, LLC	P.O. Box 151 West Mystic, CT 06388	Prop.: 0 Buddington Road	169806299877
111	MOREAU, DANIEL A. & ARCHAMBEAULT, CHERYL A.	173 Buddington Road, Groton, CT 06340	Prop.: 173 Buddington Road	169806395558
112	LEWIS, DAVID N. & KATHLEEN M.	179 Buddington Road, Groton, CT 06340	Prop.: 179 Buddington Road	169806395697
113	PERUZZOTTI, DEBORAH LYNN	193 Buddington Road, Groton, CT 06340	Prop.: 193 Buddington Road	169806395823
114	STUART, BETTE J.	P.O. Box 9232, Groton, CT 06340	Prop.: 203 Buddington Road	169806397910
115	BURNS, GERARD MICHAEL	225 Buddington Road, Groton, CT 06340	Prop.: 225 Buddington Road	169918307066
116	EASTWOOD, LLC	c/o Nicholas Furlott, P.O. Box 151 West Mystic, CT 06388	Prop.: 0 Buddington Road	169918305481
117	ZIMMERMAN, GAIL & TINA	301 BUDDINGTON RD LOT 55, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M055
118	CHAPMAN, LEE W.	301 BUDDINGTON RD LOT 56, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M056
119	VACANT	VACANT	Prop.: 301 Buddington Road	169918301735 M057
120	LEWIS, LARRY L.	301 BUDDINGTON RD LOT 58, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M058
121	FOLEY, SHERRYL E.	301 BUDDINGTON RD LOT 59, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M059
122	NUNES, PHILLIP J. (DECD)	301 BUDDINGTON RD LOT 60, Groton, CT 06340	Prop.: 301 Buddington Road	169918305481 M060
123	LANDRY, STEPHEN A.	301 BUDDINGTON RD LOT 61, Groton, CT 06340	Prop.: 301 Buddington Road	169918305481 M061
124	VACANT	VACANT	Prop.: 301 Buddington Road	169918305481 M062
125	HEUBERGER, PAUL	301 BUDDINGTON RD LOT 63, Groton, CT 06340	Prop.: 301 Buddington Road	169918305481 M063
126	JOYNER, LAURA	301 BUDDINGTON RD LOT 64, Groton, CT 06340	Prop.: 301 Buddington Road	169918305481 M064
127	PANCIERA, TAMMY J.	301 BUDDINGTON RD LOT 65, Groton, CT 06340	Prop.: 301 Buddington Road	169918305481 M065
128	VASKO, ELIZABETH A.	301 BUDDINGTON RD LOT 66, Groton, CT 06340	Prop.: 301 Buddington Road	169918305481 M066
129	PARKWOOD HOMES, LLC	c/o Nicholas Furlott, P.O. Box 151 West Mystic, CT 06388	Prop.: 301 Buddington Road	169918305481 M067
130	POST, WILLIAM H. (DECD) & LILLIAN A.	301 BUDDINGTON RD LOT 68, Groton, CT 06340	Prop.: 301 Buddington Road	169918305481 M068
131	DONOVAN, KATHLEEN T.	301 BUDDINGTON RD LOT 69, Groton, CT 06340	Prop.: 301 Buddington Road	169918305481 M069
132	SHORTMAN, HEATHER O.	301 BUDDINGTON RD LOT 70, Groton, CT 06340	Prop.: 301 Buddington Road	169918305481 M070
133	PICKETT, CLINT OR MARIANNE L.	301 BUDDINGTON RD LOT 71, Groton, CT 06340	Prop.: 301 Buddington Road	169918305481 M071
134	ROY, ROGER A. & LINDA J.	301 BUDDINGTON RD LOT 72, Groton, CT 06340	Prop.: 301 Buddington Road	169918305481 M072
135	BRONSON, DOROTHY L.	301 BUDDINGTON RD LOT 73, Groton, CT 06340	Prop.: 301 Buddington Road	169918305481 M073
136	BEENEY, KIM S.	301 BUDDINGTON RD LOT 74, Groton, CT 06340	Prop.: 301 Buddington Road	169918305481 M074
137	ALAPA, MARY M.	301 BUDDINGTON RD LOT 75, Groton, CT 06340	Prop.: 301 Buddington Road	169918305481 M075
138	LEWIS, THOMAS M.	301 BUDDINGTON RD LOT 76, Groton, CT 06340	Prop.: 301 Buddington Road	169918305481 M076
139	DENOBREGA, ANTHONY A. & MARYANN	285 Buddington Road, Groton, CT 06340	Prop.: 285 Buddington Road	169918307680 / labeled as 285 on map
140	EASTWOOD, LLC	P.O. Box 151, West Mystic, CT 06388	Prop.: 0 Buddington Road	169918305698 / labeled as 295 on map
141	HURD, LAURA	PO BOX 1188, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M031
142	PACHECO, DAWN M. & STEPHEN J.	301 BUDDINGTON RD LOT 1, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M001
143	ROLAN, REBEKAH	312 WAKEFIELD RD, Hagerstown, MD 21740	Prop.: 301 Buddington Road	169918301735 M002
144	LEE, WAYNE	301 BUDDINGTON RD LOT 3, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M003
145	PARKWOOD HOMES, LLC	PO BOX 151, West Mystic, CT 06388	Prop.: 301 Buddington Road	169918301735 M004
146	ALBOT,KAREN S.	301 BUDDINGTON RD LOT 5, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M005
147	MATHEWS, KYLE	301 BUDDINGTON RD LOT 6, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M006
148	PEPAS, STEPHANIE	301 BUDDINGTON RD LOT 6A, Groton, CT 06340	Prop.: 301 Buddington Road	169918301735 M601
149	PARKWOOD HOMES, LLC	PO BOX 151, West Mystic, CT 06388	Prop.: 301 Buddington Road	169918301735 M007

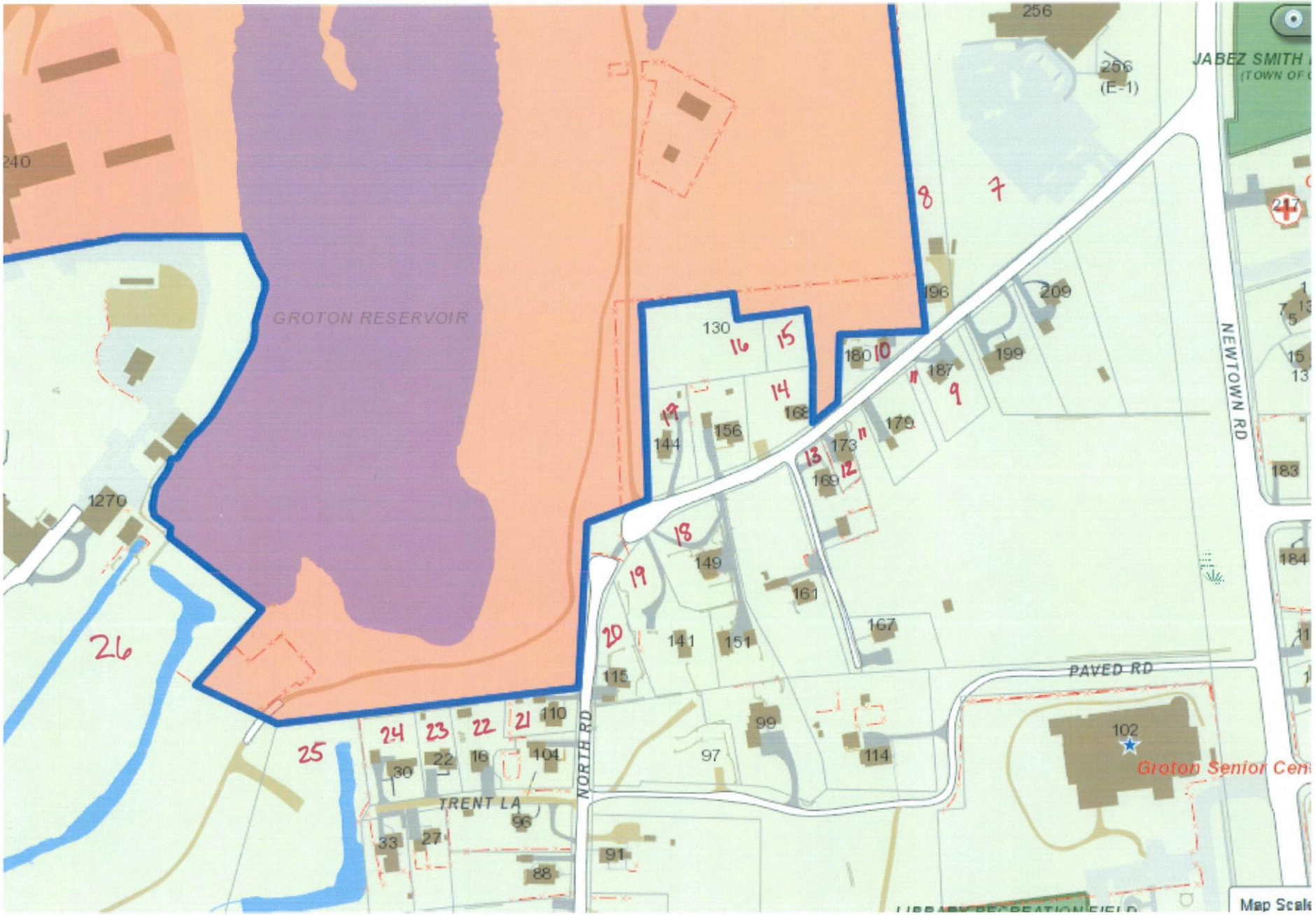
NOTICE LIST RECIPIENTS

	A	B	C	D
1	**Owner of Record**	**Owner's Mailing Address**	**Property Location**	**Property ID**
199	AMIN, JITENDRA K. & JYOTI J.	351 Buddington Road, Groton, CT 06340	Prop.: 351 Buddington Road	169918317331
200	WRIGHT, DAVID T.	359 Buddington Road, Groton, CT 06340	Prop.: 359 Buddington Road	169918316463
201	BATCHELDER, DAVID & LYNNE	373 Buddington Road, Groton, CT 06340	Prop.: 373 Buddington Road	169918317504
202	RAVENELLE, RICHARD H. & NORMA S.	395 Buddington Road, Groton, CT 06340	Prop.: 395 Buddington Road	169918317754
203	BEERS, ROBERT N. JR. & YOLANDA D.	385 Buddington Road, Groton, CT 06340	Prop.: 385 Buddington Road	169918318634
204	SNELL, PAUL A. III & AMY K.	409 Buddington Road, Groton, CT 06340	Prop.: 409 Buddington Road	169918318863
205	GEER, RICHARD A. & SAVANAH C.	429 Buddington Road, Groton, CT 06340	Prop.: 429 Buddington Road	169918328091
206	COLLINS, JAMES M.	449 Buddington Road, Groton, CT 06340	Prop.: 449 Buddington Road	169918329256
207	STATE OF CONNECTICUT	I-95 (DOT?)	Prop.: 0 Buddington Road	169918420319 E
208	PORTILLO, GLORIA D.	543 Buddington Road, Groton, CT 06340	Prop.: 543 Buddington Road	1699143525897
209	CITY OF GROTON	P.O. Box 820, Groton, CT 06340	Prop.: 18 North Road	169911558390 E

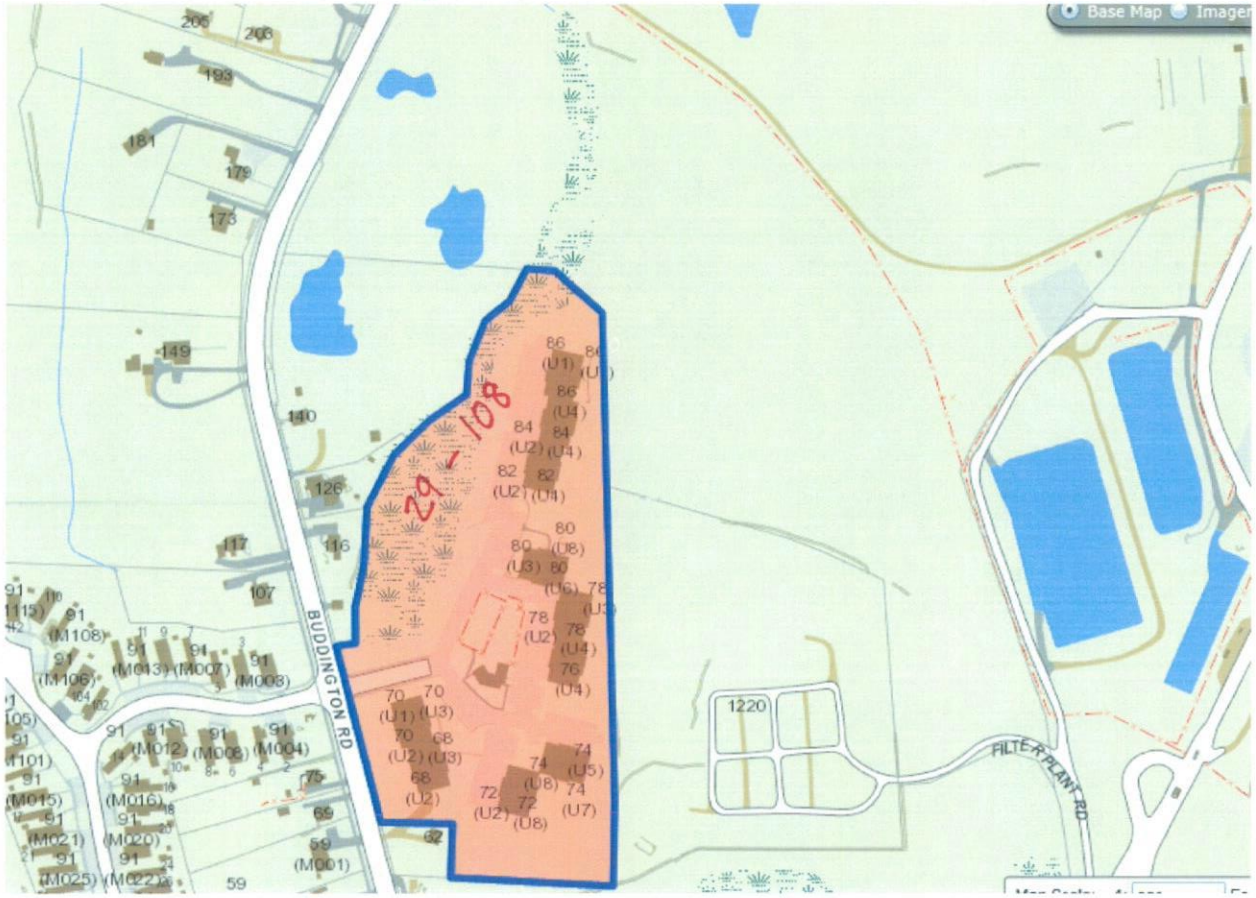
Red numbering refers to row #s on Notice List Recipients Excel



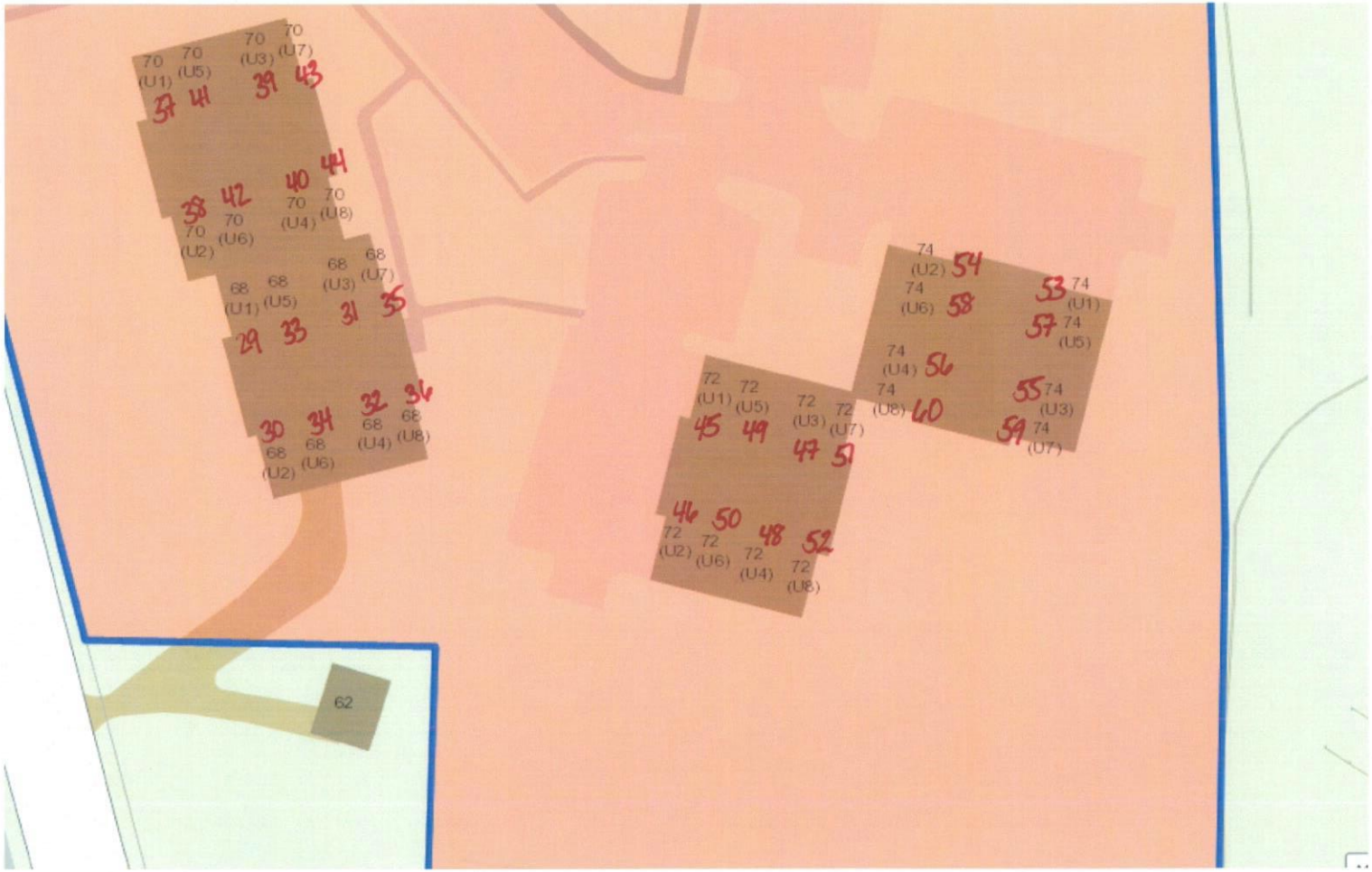
Detail of rows 7-26



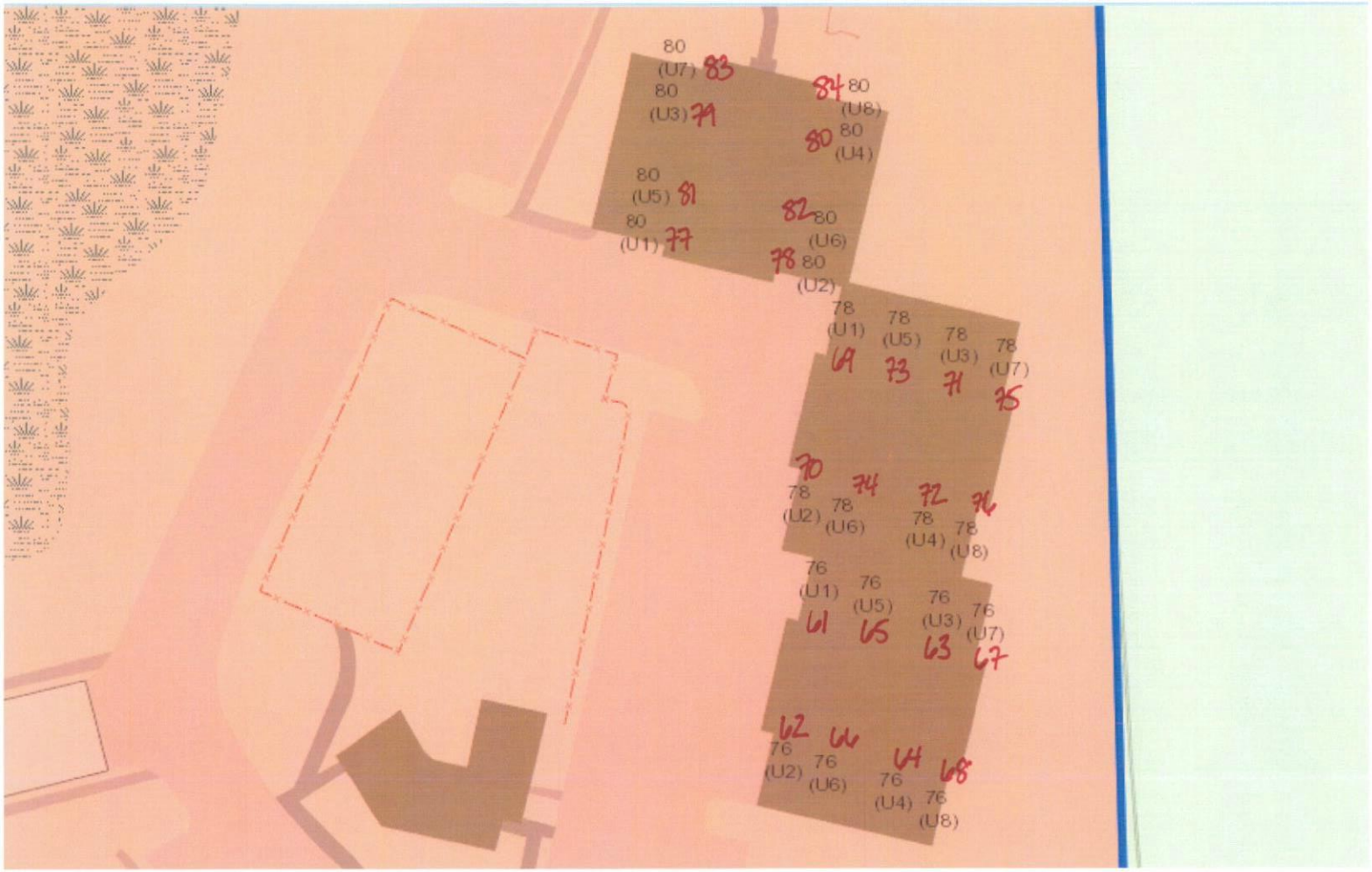
Overview of parcel with rows 29-108



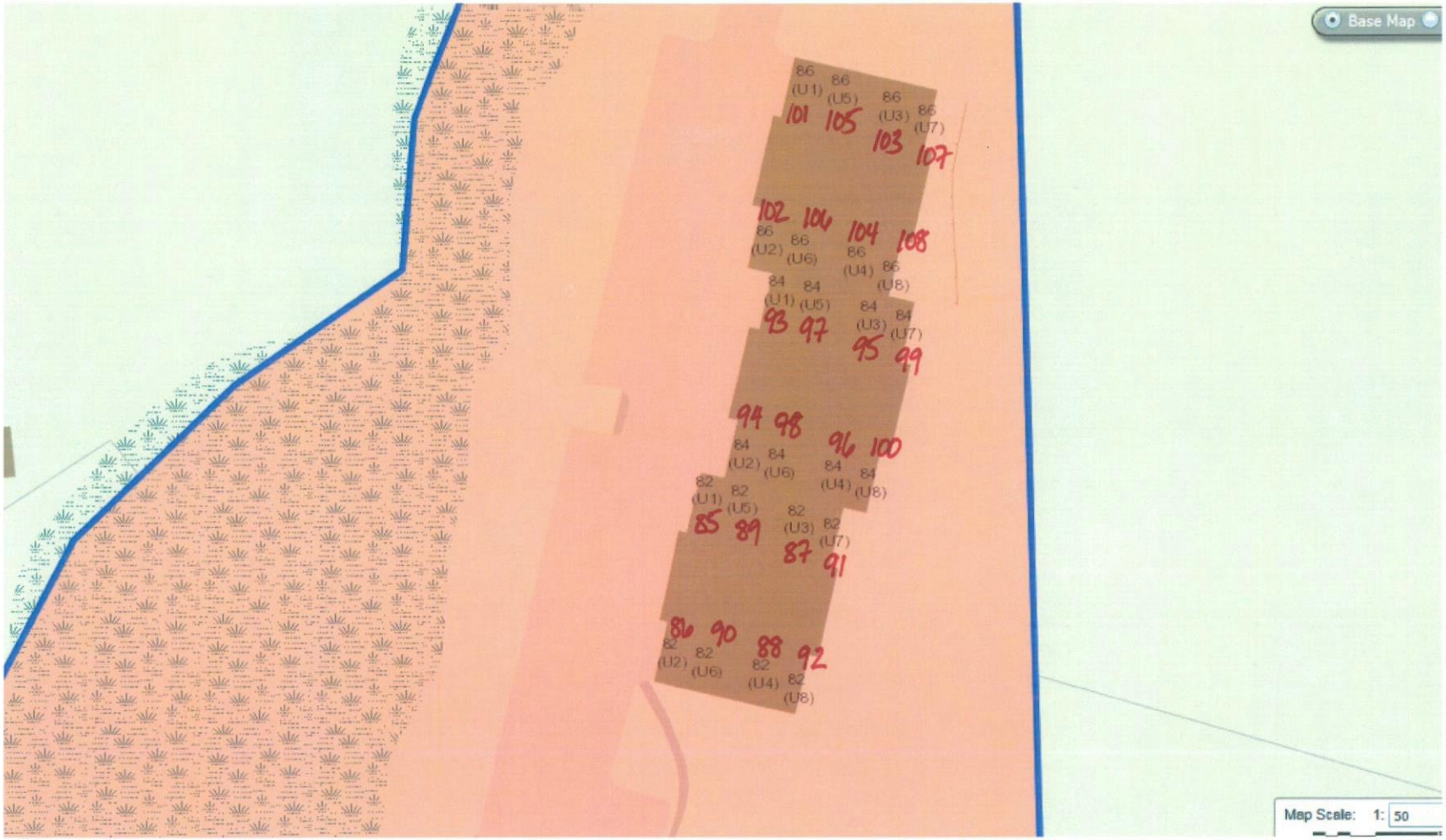
Detail 1 of 3 of parcel with rows 29-108

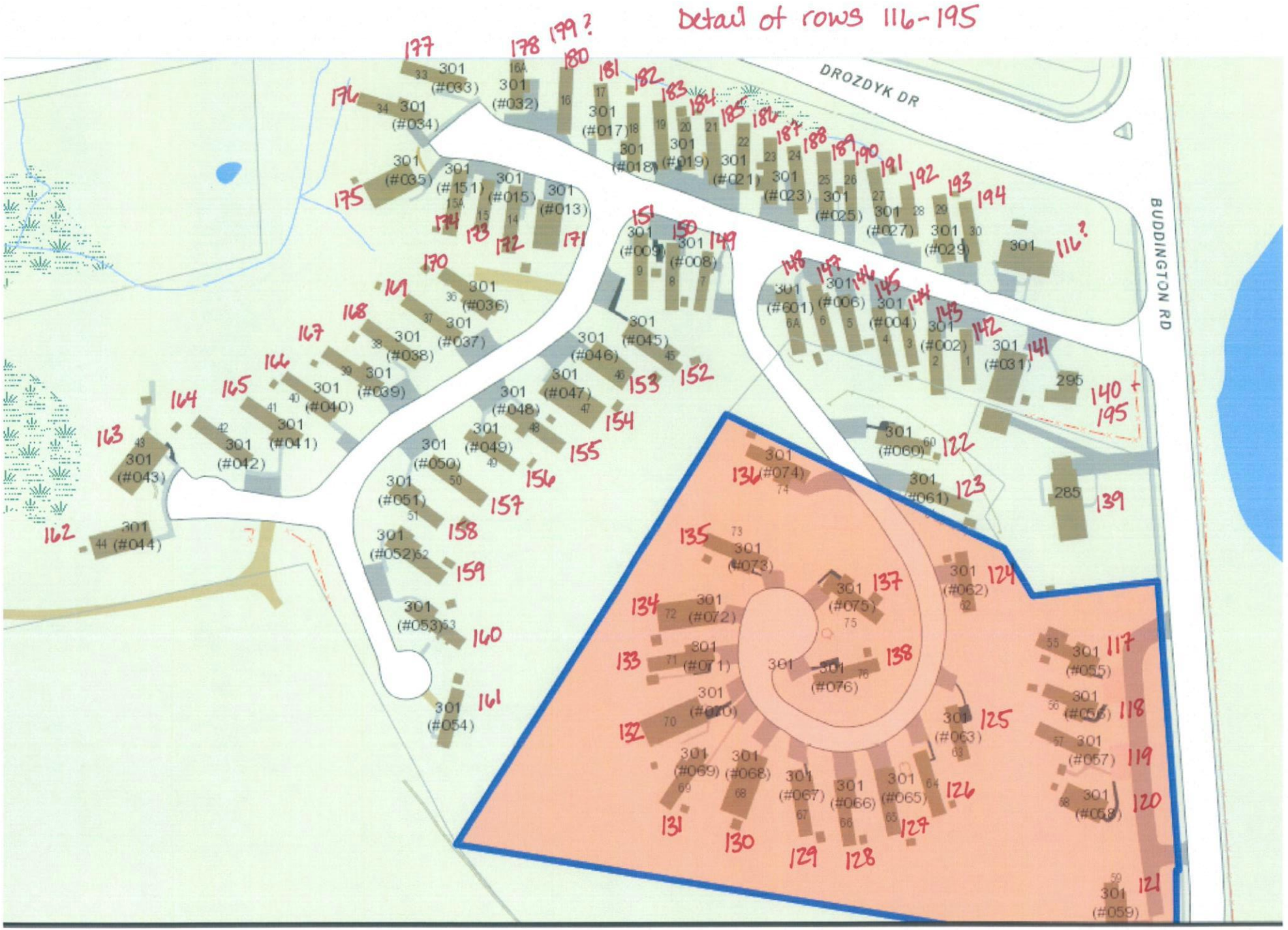


Detail 2 of 3 of parcel with rows 29-108



Detail 3 of 3 of parcel with rows 29 -108




Detail of rows 116-195
DROZDYK DR
BUDDINGTON RD
301 (#033)
301 (#032)
301 (#034)
301 (#035)
301 (#151)
301 (#015)
301 (#013)
301 (#017)
301 (#018)
301 (#019)
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301 (#074)
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301 (#065)
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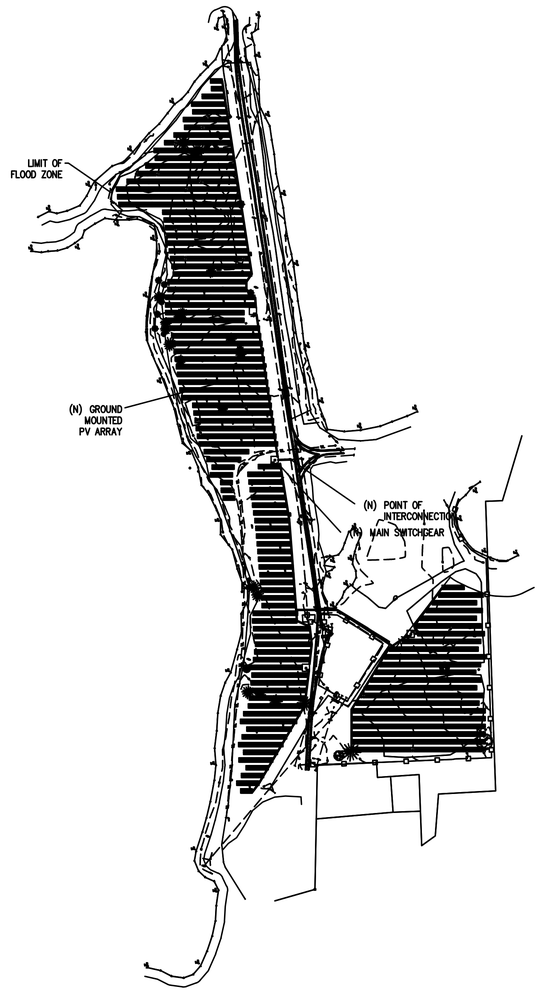
301 (#059)

4052.32 KW SOLAR PV SYSTEM FOR CONNECTICUT MUNICIPAL ELECTRIC ENERGY COOPERATIVE - GROTON



PROPERTY PLAN

1"=200'-0"

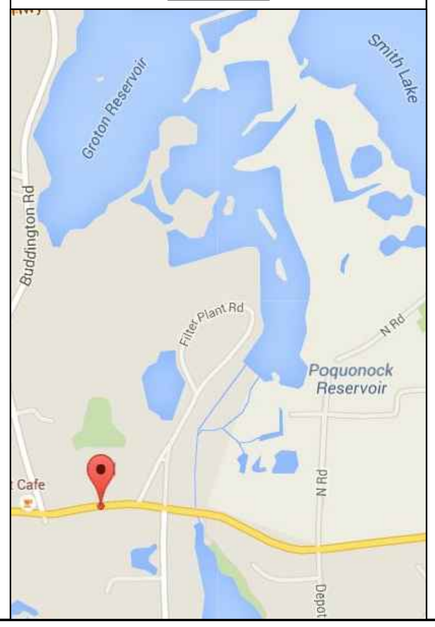
0 200' 400'

N W E S

180°

VICINITY MAP

AERIAL MAP



GENERAL NOTES

ALL WORK SHALL COMPLY WITH ALL STATE AND LOCAL CODES AND ANY OTHER REGULATING AUTHORITIES WHICH HAVE AUTHORITY OVER ANY PORTION OF THE WORK.

DRAWINGS HAVE BEEN DETAILED IN COMPLIANCE WITH UL LISTING REQUIREMENTS, OSFM SOLAR PHOTOVALITIC INSTALLTION REQUIREMENTS, AND BUILDING CODES FOR THE MATERIALS SPECIFIED.

PRIOR TO COMMENCEMENT OF ANY WORK, THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS AND NOTIFY THE DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE FROM SOLARCITY OF ANY DISCREPANCIES. ANY WORK PERFORMED IN CONFLICT WITH THE CONTRACT DOCUMENTS SHALL BE CORRECTED AT THE SUBCONTRACTORS SOLE EXPENSE.

SUBCONTRACTOR INITIATED CHANGES SHALL BE SUBMITTED IN WRITING TO SOLARCITY FOR APPROVAL BEFORE MAKING ANY CHANGES. DEVIATION FROM PLANS BEFORE WRITTEN APPROVAL FROM SOLARCITY PLACES LIABILITY ON THE SUBCONTRACTOR.

ALL EQUIPMENT SHALL BE MOUNTED AS SHOWN. WHERE DETAILS ARE NOT PROVIDED, CONTRACTOR SHALL USE STANDARD CONSTRUCTION PRACTICES.

ALL SURFACES SHALL BE PATCHED AND PAINTED AROUND NEW DEVICES AND EQUIPMENT TO MATCH EXISTING FINISHES.

ANY METAL SHAVINGS FROM SITE WORK SHALL BE CLEANED FROM ALL SURFACES WHERE OXIDIZED OR CONDUCTIVE METAL SHAVINGS MY CAUSE RUST, ELECTRICAL SHORT CIRCUITS, OR OTHER DAMAGE.

BEAMS OR PURLINS SHALL NOT BE DRILLED UNLESS AUTHORIZED BY SOLARCITY OR SHOWN IN THE DRAWINGS.

APPROVALS FROM BUILDING INSPECTORS SHALL NOT CONSTITUTE AUTHORITY TO DEVIATE FROM THE DRAWINGS.

PROJECT TEAM

DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE:
PAUL KIRSCHNER
SOLARCITY, INC.
6132 NE 112TH AVE
PORTLAND, OR 97220
TEL: (503) 894-6910
PKIRSCHNER@SOLARCITY.COM

ELECTRICAL ENGINEER:
BILL LOU, PE, PH.D
SOLARCITY, INC.
3055 CLEARVIEW WAY
SAN MATEO, CA 94402
TEL: (650) 963-4735
BLOU@SOLARCITY.COM

CIVIL/STRUCTURAL:
RBI SOLAR
5513 VINE STREET
CINCINNATI, OH 45217
TEL: (513) 242-2051

ABBREVIATIONS

A	AMPERE
AC	ALTERNATING CURRENT
ADA	AMERICANS WITH DISABILITIES ACT
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
BLDG	BUILDING
CLR	CLEAR
CONC	CONCRETE
DC	DIRECT CURRENT
DIA	DIAMETER
DIST	DISTANCE
EQ	EQUAL
EGC	EQUIPMENT GROUNDING CONDUCTOR
(E)	EXISTING
EA.	EACH
EMT	ELECTRICAL METALLIC TUBING
GALV	GALVANIZED
GEC	GROUNDING ELECTRODE CONDUCTOR
GND	GROUND
HDG	HOT DIPPED GALVANIZED
I	CURRENT
Imp	CURRENT AT MAX POWER
INVS	INVERTERS
Isc	SHORT CIRCUIT CURRENT
kVA	KILOVOLT AMPERE
kW	KILOWATT
kWh	KILOWATT-HOUR
LBW	LOAD BEARING WALL
MAX	MAXIMUM
MIN	MINIMUM
(N)	NEW
NEC	NATIONAL ELECTRIC CODE
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OC	ON CENTER
OCP	OVERCURRENT PROTECTION
PL	PROPERTY LINES
PV	PHOTOVOLTAIC
PVC	POLYVINYL CHLORIDE
SCH	SCHEDULE
SQ. IN.	SQUARE INCHES
SS	STAINLESS STEEL
SSD	SEE STRUCTURAL DRAWINGS
STC	STANDARD TESTING CONDITIONS
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTIBLE POWER SUPPLY
VIF	VERIFY IN FIELD
V	VOLT
Vmp	VOLTAGE AT MAX POWER
Voc	VOLTAGE AT OPEN CIRCUIT
W	WATT
3R	NEMA 3R, RAINTIGHT

SYSTEM SUMMARY

MODULE: (13,072) CANADIAN SOLAR # CS6X-310P

INVERTER:
(2) SOLECTRIA SGI 500XTM
(3) SOLECTRIA SGI 750XTM

RACK TYPE: RBI SOLAR

ARRAY TILT: 20°

AZIMUTH: 180°

DESIGN CRITERIA

WIND SPEED: 110 MPH

EXPOSURE: C

SNOW LOAD: 30 PSF

CODE SUMMARY

BUILDING CODE
ALL WORK SHALL COMPLY WITH THE 2012 INTERNATIONAL BUILDING CODE.

ELECTRICAL CODE
ALL ELECTRICAL WORK SHALL COMPLY WITH THE 2011 NATIONAL ELECTRIC CODE.

INDEX

SolarCity
3055 Clearview Way, San Mateo, CA 94402
T:(650) 638-1028 | F:(650) 638-1029
(888)-SOL-CITY (765-2489) | www.solarcity.com

CONNECTICUT MUNICIPAL ELECTRIC ENERGY COOPERATIVE – GROTON
4052.32 KW GROUND MOUNT PV SYSTEM
Connecticut Municipal Electric Energy Cooperative – Groton
1280 Poquonnock Road
Groton, CT
860-889-4088

REVISIONS

REV	BY	DATE	COMMENTS

JOB DETAILS

AHJ: New London
MODULES: (13072) CANADIAN SOLAR # CS6X-310P
MOUNTING SYSTEM: RBI SOLAR GROUND MOUNT
INVERTER: Multiple Inverters
DESIGN: P KIRSCHNER
CHECKED BY: EZ
MARKET: COMM
PROJECT MANAGER: ROB MILLER
DATE: 8/24/15
PAYMENT TYPE: PPA
SHEET NAME: COVER SHEET
JOB NUMBER: JB-0632046-00
SHEET: PV 1
REV: 0

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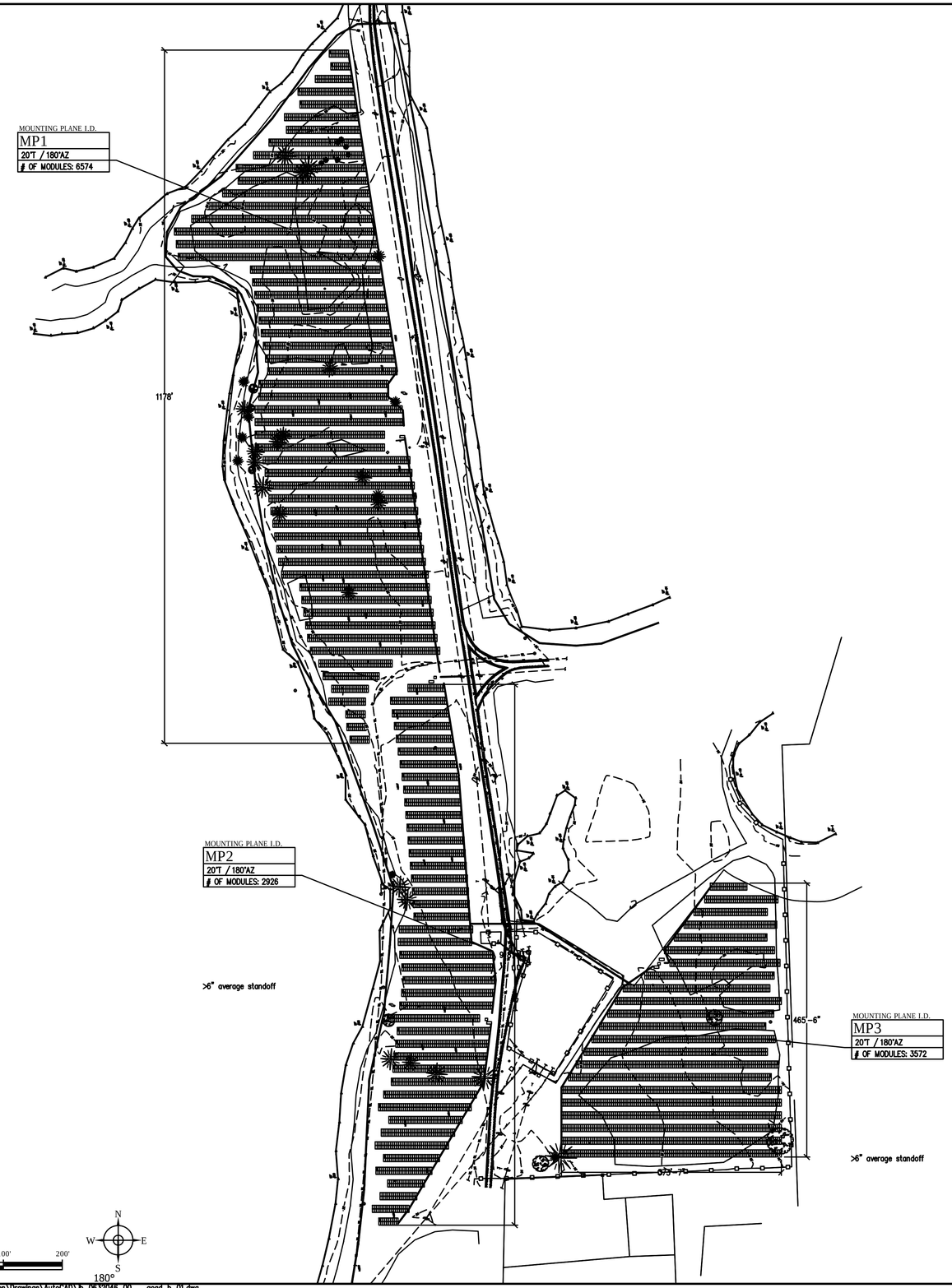

LEGEND

(N) GROUND-MOUNTED SOLAR PV MODULES (ELECTRICALLY CONNECTED)

(N) GROUND-MOUNTED SOLAR PV MODULES (ELECTRICALLY ISOLATED)

(E) UTILITY POLE

SITE PLAN

1"=100'-0"

0 100' 200'

N W E S

180°

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JOB DETAILS

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MOUNTING SYSTEM: RBI SOLAR GROUND MOUNT

INVERTER: Multiple Inverters

DESIGN: P KIRSCHNER

CHECKED BY: EZ

DRAWN BY: COMM

PROJECT MANAGER: ROB MILLER

DATE: 8/24/15

PAYMENT TYPE: PPA

SHEET NAME: ARRAY PLAN

JOB NUMBER: JB-0632046-00

SHEET: PV 2

REV: 0

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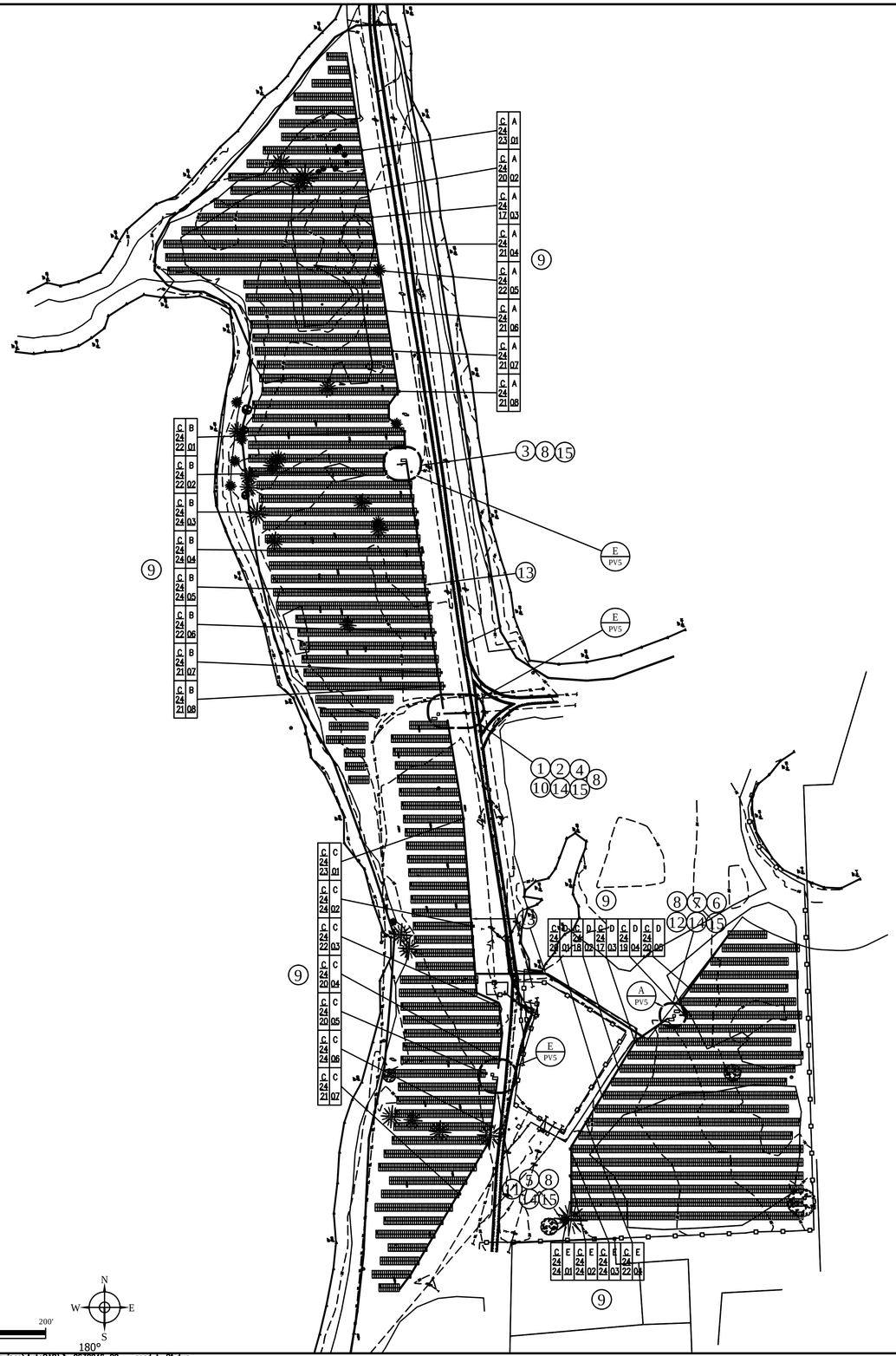


SHEET NOTES

A. SEE PV15 FOR WARNING LABEL DETAILS.
B.

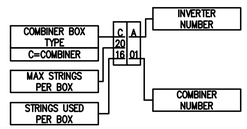
LEGEND

- (N) GROUND-MOUNTED SOLAR PV MODULES (ELECTRICALLY CONNECTED)
- (N) GROUND-MOUNTED SOLAR PV MODULES (ELECTRICALLY ISOLATED)
- (E) UTILITY POLE
- (N) DC COMBINER BOX

KEYED NOTES

1. (E) UTILITY POWER POLE (N) POINT OF AC INTERCONNECTION. WARNING LABEL DETAIL
2. (N) MAIN SWITCHGEAR WITH PV SYSTEM UTILITY AC DISCONNECT
3. (N) PV INVERTER "A". WARNING LABEL DETAIL 2/PV15.
4. (N) PV INVERTER "B". WARNING LABEL DETAIL 2/PV15
5. (N) PV INVERTER "C". WARNING LABEL DETAIL 2/PV15
6. (N) PV INVERTER "D". WARNING LABEL DETAIL 2/PV15
7. (N) PV INVERTER "E". WARNING LABEL DETAIL 2/PV15
8. (N) DC DISCONNECT SWITCH(ES) LOCATED AT INVERTER. WARNING LABEL DETAIL 3/PV15.
9. (N) PV SOURCE CIRCUIT DC COMBINER BOXES WITH INTEGRATED LOAD-BREAK DISCONNECT SWITCH. WARNING LABEL DETAIL 4/PV15.
10. (N) 1500KVA STEP UP TRANSFORMER "I"
11. (N) 750KVA STEP UP TRANSFORMER "II"
12. (N) 1000KVA STEP UP TRANSFORMER "III"
13. (N) CONDUIT IN TRENCH. SEE DETAILS C,D/PV7.
14. (N) MONITORING EQUIPMENT, SOLARGUARD GATEWAY.
15. (N) MONITORING EQUIPMENT, SOLARGUARD PV PRODUCTION kWh METER.

COMBINER BOX NUMBERING SYSTEM



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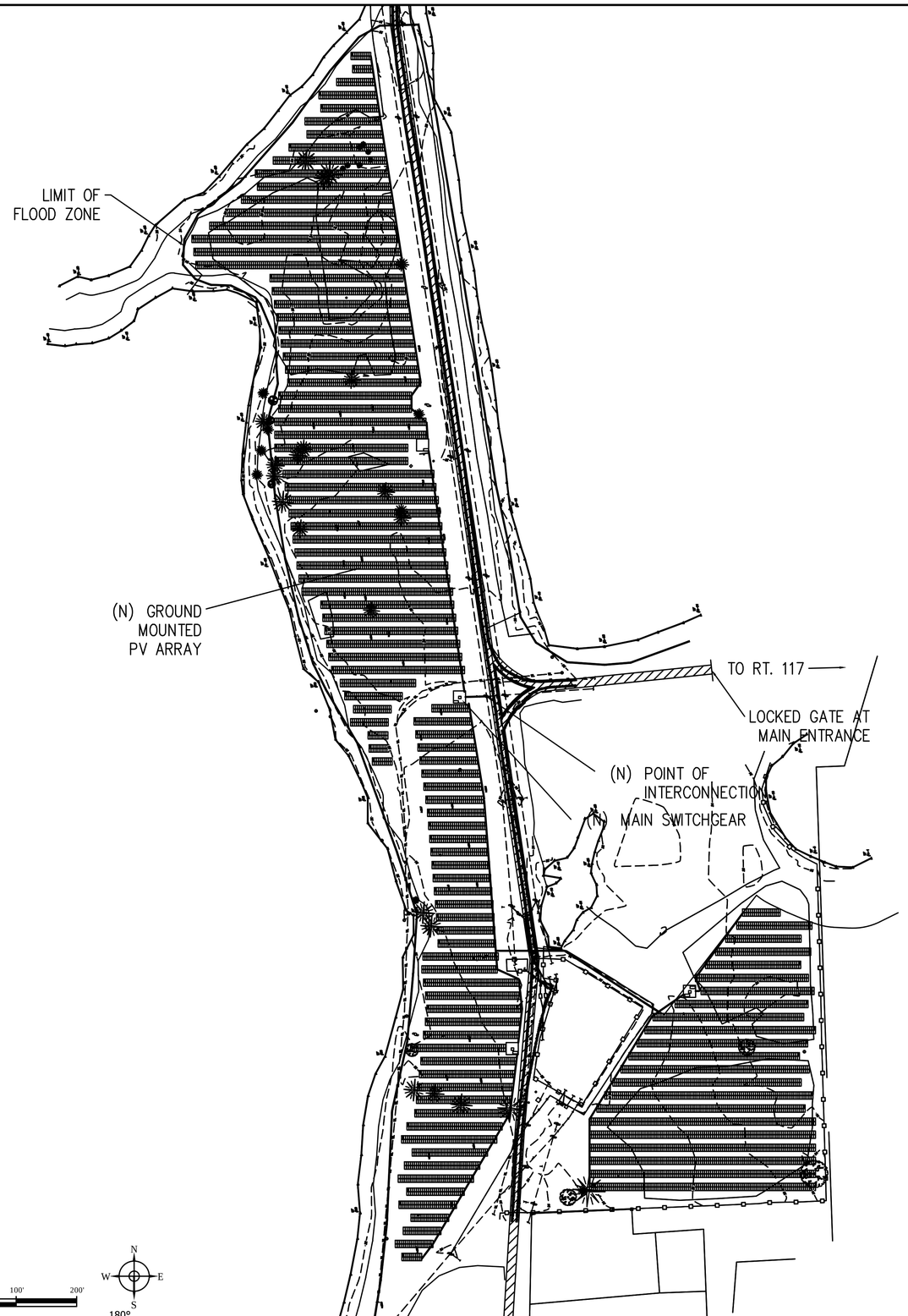
DESIGN: P KIRSCHNER
CHECKED BY: EZ
MARKET: COMM
PROJECT MANAGER: ROB MILLER
DATE: 8/24/15
PAYMENT TYPE: PPA
SHEET NAME: SITE PLAN
JOB NUMBER: JB-0632046-00
SHEET: PV 3
REV: 0



ACCESS PLAN

1"=100'-0"

0 100' 200'

N W E S 180°

LEGEND

(N) GROUND-MOUNTED SOLAR PV MODULES (ELECTRICALLY CONNECTED)

(N) GROUND-MOUNTED SOLAR PV MODULES (ELECTRICALLY ISOLATED)

(E) UTILITY POLE

FIRE ACCESS PATH

FIRE SIGNAGE NOTES

SIGNAGE SHALL BE IN COMPLIANCE WITH CEC 690 AND THE CALIFORNIA DEPARTMENT OF FORESTRY AND FIRE PROTECTION OFFICE OF THE STATE FIRE MARSHALL SOAR PHOTOVOLTAIC INSTALLATION GUIDELINE

MARK EXISTING MAIN SERVICE DISCONNECT

MARKING CONTENT: "CAUTION ELECTRIC SYSTEM CONNECTED"

-RED BACKROUND
-WHITE LETTERING
-MINIMUM 3/8" LETTER HEIGHT
-ALL CAPITAL LETTERS
-ARIAL OR SIMILAR FONT, NON BOLD
-REFLECTIVE, WEATHER RESISTANT MATERIAL SUITABLE FOR THE ENVIRONMENT (DURAB LE ADHESIVE MATERIALS MAY MEET THE REQUREMENT)

MARK ALL DC ENCLOSURES AND JUNCTION BOXES AND ALL ABOVE GROUND RACEWAYS AND CABLEWAY ASSEMBLIES EVERY 10 FEET

MARKING CONTENT: "CAUTION SOLAR CIRCUIT"

-RED BACKROUND
-WHITE LETTERING
-MINIMUM 3/8" LETTER HEIGHT
-ALL CAPITAL LETTERS
-ARIAL OR SIMILAR FONT, NON BOLD
-REFLECTIVE, WEATHER RESISTANT MATERIAL SUITABLE FOR THE ENVIRONMENT (DURABLE ADHESIVE MATERIALS MAY MEET THE REQUIREMENT)

GROUND MOUNT ACCESS NOTES

A. MIN 12' SETBACK FROM FENCING.
B. MIN 12' SETBACK FROM ALL PROPERTY LINES.
C. MIN 30' SETBACK FROM ALL UTILITY POLES.

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MARKET: COMM
PROJECT MANAGER: ROB MILLER
DATE: 8/24/15
PAYMENT TYPE: PPA
SHEET NAME: ACCESS PLAN
JOB NUMBER: JB-0632046-00
SHEET: PV 4
REV: 0

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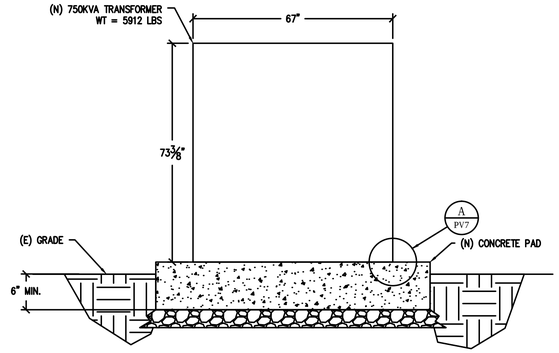
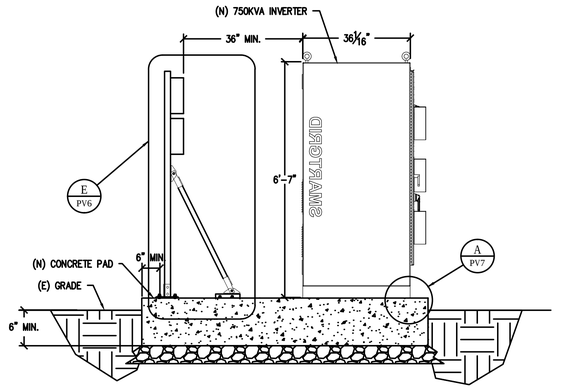


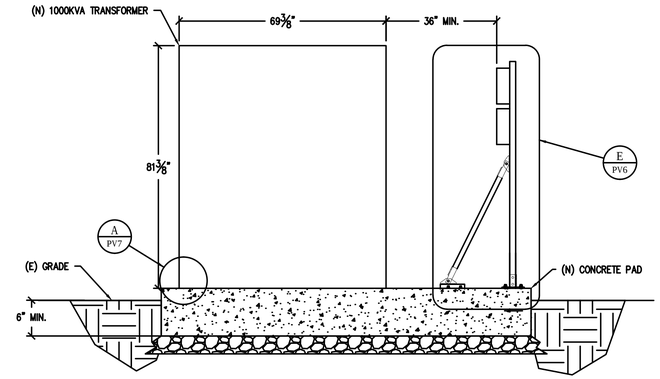
G EQUIPMENT CONCRETE PAD (SIDE VIEW)

1/2"=1'-0"



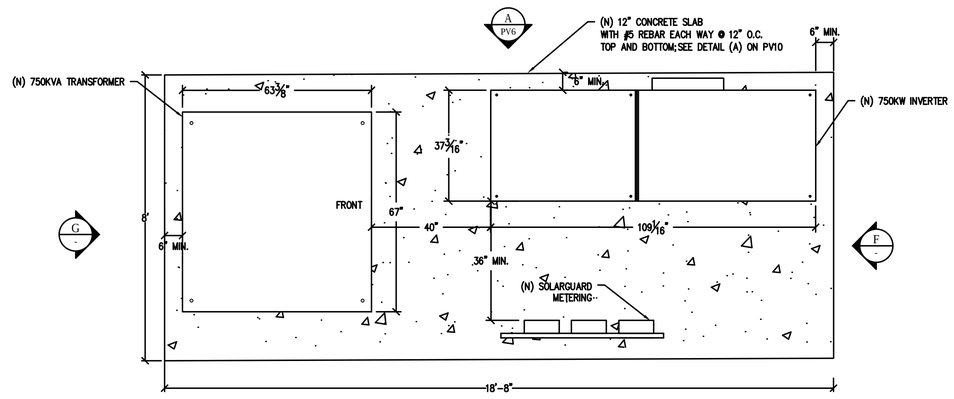
F EQUIPMENT CONCRETE PAD (SIDE VIEW)

1/2"=1'-0"



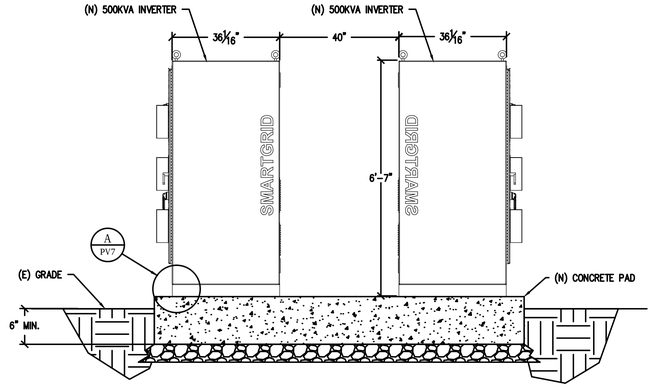
C EQUIPMENT CONCRETE PAD (SIDE VIEW)

1/2"=1'-0"



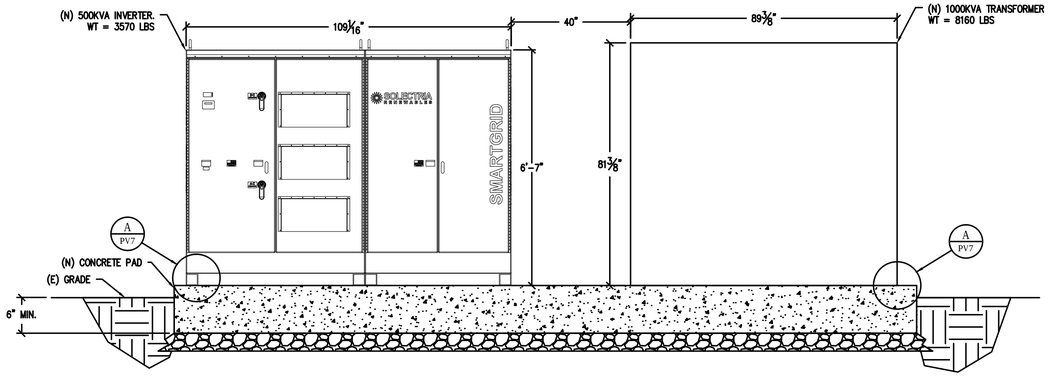
E EQUIPMENT CONCRETE PAD (PLAN VIEW)

1/2"=1'-0"



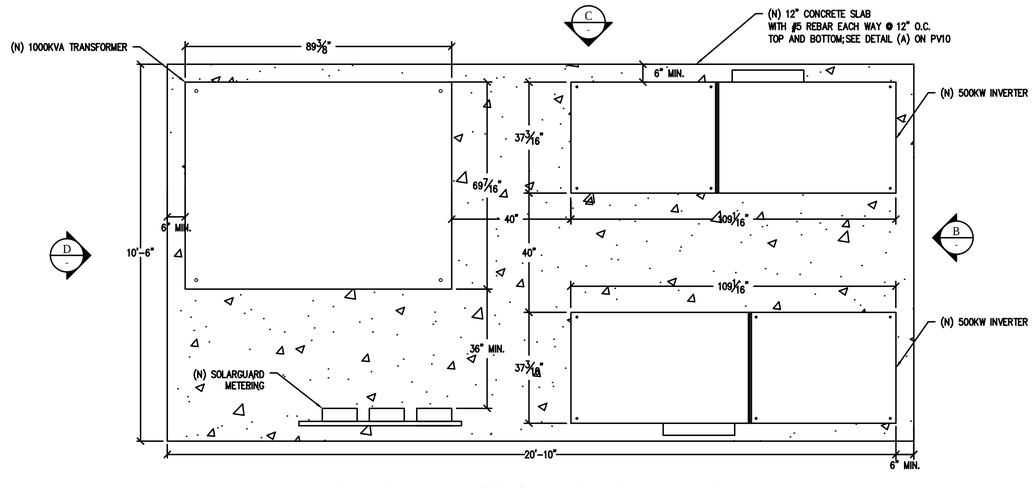
B EQUIPMENT CONCRETE PAD (SIDE VIEW)

1/2"=1'-0"



D EQUIPMENT CONCRETE PAD (FRONT)

1/2"=1'-0"



A EQUIPMENT CONCRETE PAD (PLAN VIEW)

1/2"=1'-0"

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CONNECTICUT MUNICIPAL ELECTRIC ENERGY COOPERATIVE – GROTON
4052.32 KW GROUND MOUNT PV SYSTEM
Connecticut Municipal Electric Energy Cooperative – Groton
1280 Poquonnock Road
Groton, CT
860-889-4088

REVISIONS

REV	BY	DATE	COMMENTS

JOB DETAILS

AHJ: New London
MODULES: (13072) CANADIAN SOLAR # CS6X-310P
MOUNTING SYSTEM: RBI SOLAR GROUND MOUNT
INVERTERS: Multiple Inverters
DESIGN: P KIRSCHNER
CHECKED BY: EZ
MARKET: COMM
PROJECT MANAGER: ROB MILLER
DATE: 8/24/15
PAYMENT TYPE: PPA
SHEET NAME: STRUCTURAL DETAILS & INVERTER PADS
JOB NUMBER: JB-0632046-00
SHEET: PV 5
REV: 0

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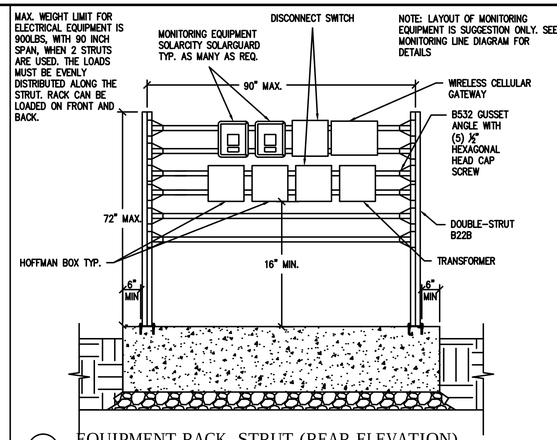
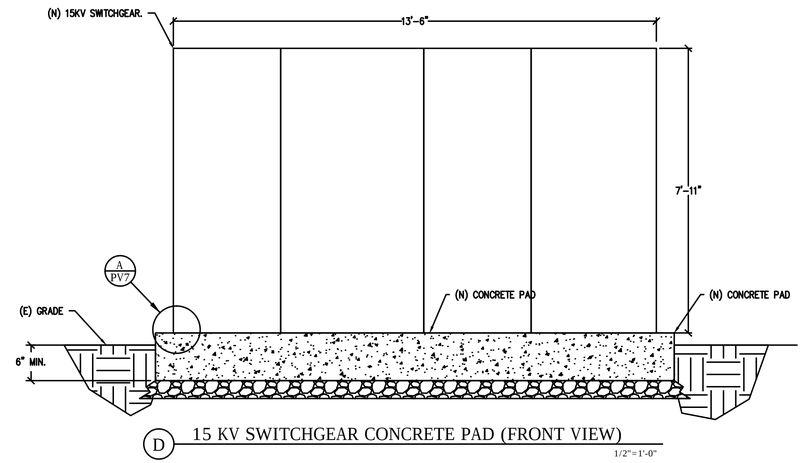


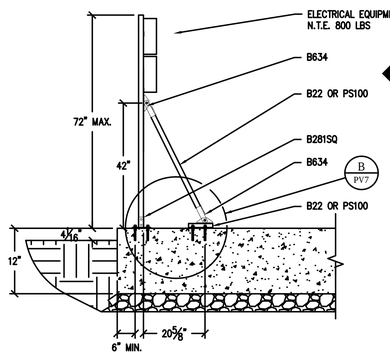
F EQUIPMENT RACK, STRUT (REAR ELEVATION)

1/2"=1'-0"



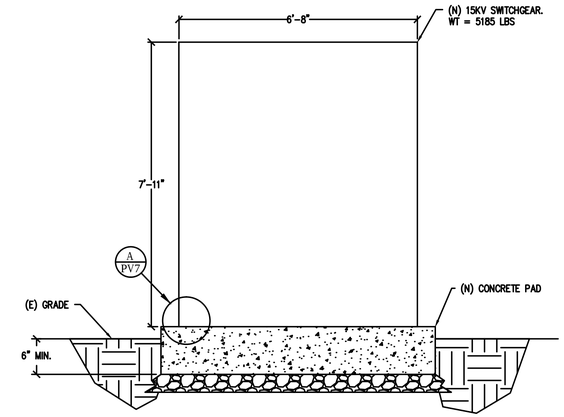
D 15 KV SWITCHGEAR CONCRETE PAD (FRONT VIEW)

1/2"=1'-0"



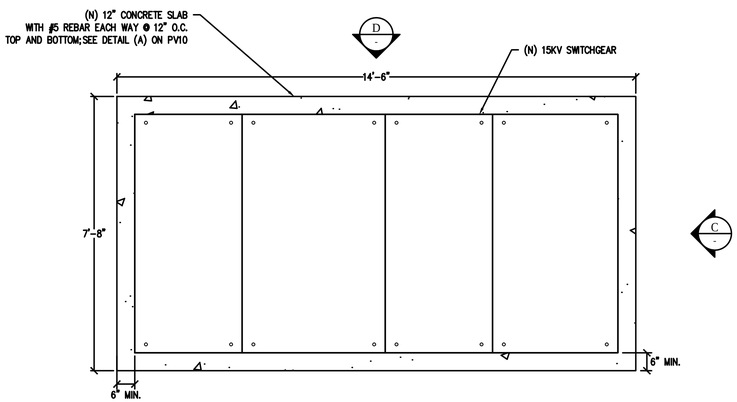
E EQUIPMENT RACK, STRUT (SIDE ELEVATION)

1/2"=1'-0"



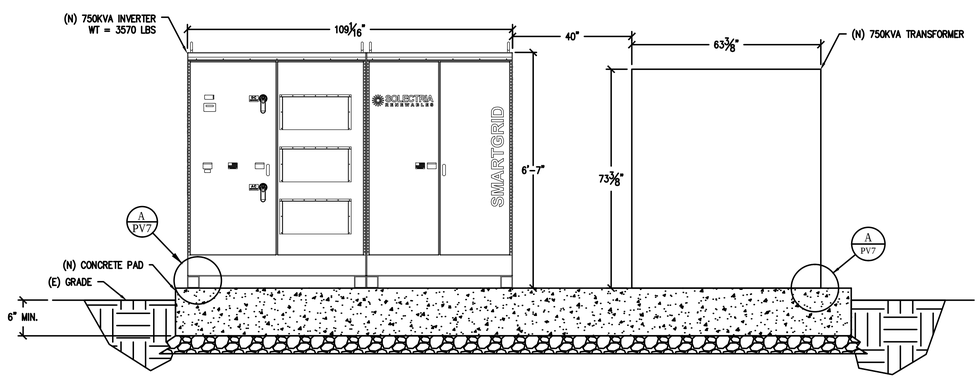
C 15 KV SWITCHGEAR CONCRETE PAD (SIDE VIEW)

1/2"=1'-0"



B 15 KV SWITCHGEAR CONCRETE PAD (PLAN VIEW)

1/2"=1'-0"



A EQUIPMENT CONCRETE PAD (FRONT)

1/2"=1'-0"

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PROJECT MANAGER: ROB MILLER
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SHEET: PV 6
REV: 0

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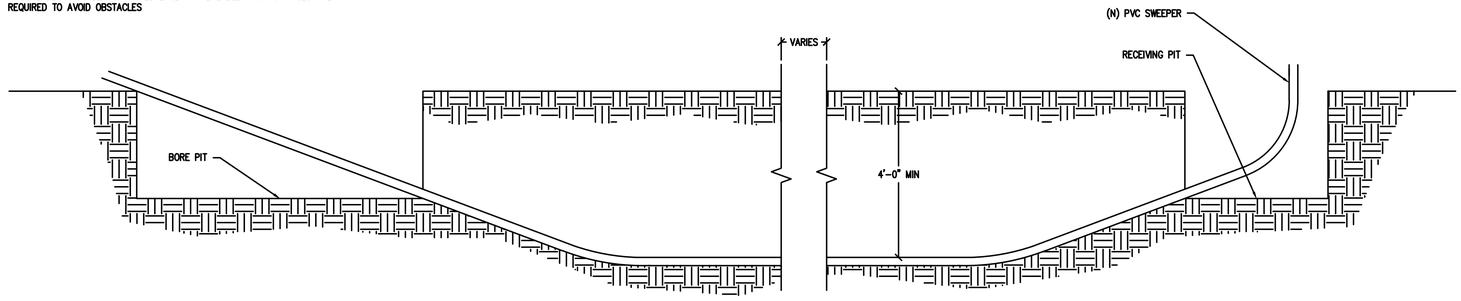
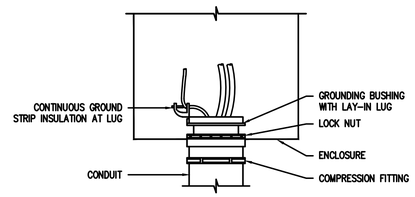
NOTE:

4' BORE DEPTH TO BE MAINTAINED EXCEPT WHERE ELEVATION CHANGES ARE REQUIRED TO AVOID OBSTACLES



F HORIZONTAL BORE DETAIL

NTS



E CONDUIT GROUNDING DETAIL

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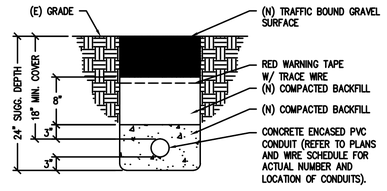
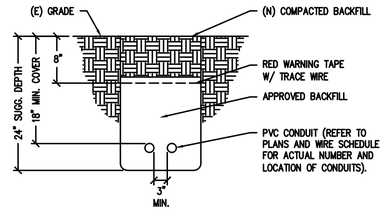


D TRENCH THROUGH GRAVEL DRIVEWAY DETAIL

NTS



C TRENCH THROUGH SOIL NON-TRAFFIC DETAIL

NTS

CONCRETE NOTES

1. CONCRETE STRENGTH -PROVIDE CONCRETE WITH THE FOLLOWING STRENGTHS AT THE LOCATIONS NOTED. MIX DESIGN, SLUMP, AIR ENTRAINMENT, AGGREGATE SIZE, ETC. SHALL BE IN CONFORMANCE WITH THE ACI CODE, LATEST EDITION.

LOCATION: ANY

STRENGTH AT 28 DAYS: 3000 PSI

A. ALL CONCRETE AGGREGATE IS HARD ROCK UON
B. DESIGN MIX SHALL CONTAIN 5-1/2 SACKS OF CEMENT, MIN.
C. TYPE I/II CEMENT TO MEET ASTM C150.
D. MAX AGGREGATE SIZE SHALL BE 3/4"
E. MAX WATER/CEMENT RATIO SHALL BE 0.54 (MAX 0.50 IN COLORADO)
F. MAX SLUMP SHALL BE 4"
G. PROVIDE 6% AIR ENTRAINMENT, ADD MIXTURE IN SNOW STATES ONLY (MIN 6% +/- 1.5%)

2. REINFORCING STEEL -ASTM A615 WITH THE FOLLOWING STRENGTHS:

SIZE	STRENGTH:
#4 AND SMALLER	GRADE 60 (fy = 60000 PSI)
#5 AND LARGER	GRADE 60 (fy = 60000 PSI)

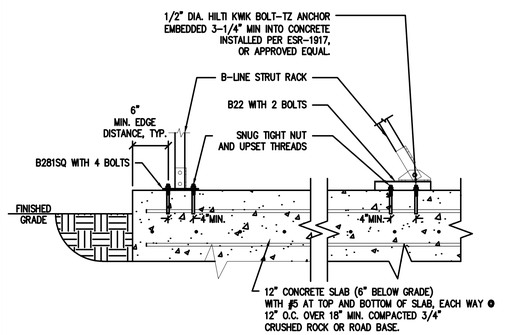
3. FABRICATE AND PLACE REINFORCEMENT IN ACCORDANCE WITH ACI PUBLICATION SP-66, ACI DETAILING MANUAL - LATEST EDITION.

4. PLACE CONCRETE IN COMPLIANCE WITH ACI 304. ALL CONCRETE SHALL BE MECHANICALLY VIBRATED.

5. CONCRETE COVER FOR REINFORCEMENT FOR NON-PRESTRESSED, CAST IN PLACE CONCRETE SHALL BE AS FOLLOWS:

CONDITION	COVER
CAST AGAINST EARTH	3"
EXPOSED TO WEATHER	
#5 AND SMALLER	1-1/2"
#6 AND LARGER	2"
SLAB-ON-GRADE	2"

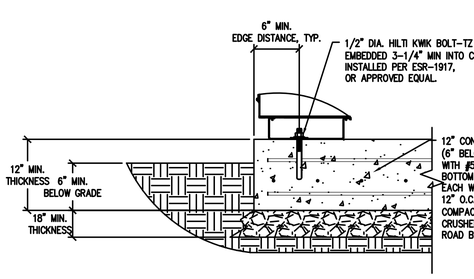
6. EMBEDS -ALL ITEMS TO BE CAST INTO CONCRETE SUCH AS REINFORCING DOWELS, BOLTS, ANCHORS, PIPES, SLEEVES, ETC., SHALL BE SECURELY AND ACCURATELY POSITIONED INTO THE FORMS PRIOR TO PLACING THE CONCRETE.



B ANCHOR DETAIL, STRUT

NTS

NOTE: TOP UPPER BARS AND BOTTOM LOWER BARS SHALL RUN IN THE LONG DIRECTION OF THE SLAB



A ANCHOR DETAIL

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SHEET: PV 7
REV: 0

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EXTERNAL TRANSFORMER REQUIREMENTS FOR SOLECTRIA XTM INVERTER

1. TRANSFORMER TYPE

THE TRANSFORMER SHALL BE THREE PHASE, SELF-COOLED, AND DESIGNED FOR STEP-UP OPERATION. TRANSFORMER SHALL BE UL LISTED. PAD MOUNT, DISTRIBUTION TYPE TRANSFORMERS SHALL COMPLY WITH THE LATEST ISSUE OF IEEE/ANSI C57.12.34. TRANSFORMER SHALL OPERATE AT 60HZ NOMINAL AND SHALL BE TOLERANT OF CONTINUOUS FREQUENCIES BETWEEN 54.0HZ AND 60.5HZ. TRANSFORMER SHALL BE CAPABLE OF OPERATING AT 1.1P.U. VOLTAGE AT FULL LOAD WITHOUT SATURATION FOR PERIODS OF TIME TYPICAL OF THE EXPECTED GENERATION PROFILE. DIFFERENT FREQUENCY AND VOLTAGE REQUIREMENTS MAY BE NECESSARY FOR PROJECTS WITH VOLTAGE OR FREQUENCY RIDE THROUGH REQUIREMENTS OTHER THAN THOSE DEFINED IN IEEE 1547-2003. REQUIREMENTS OUTSIDE OF THIS STANDARD RANGE MUST BE REVIEWED AND APPROVED BY SOLECTRIA.

2. TRANSFORMER RATING

A SINGLE INVERTER ISOLATED BY ONE TRANSFORMER SHALL HAVE ONE PRIMARY WINDING AND ONE SECONDARY WINDING. THE KVA RATING OF THE TRANSFORMER MUST AT LEAST BE EQUAL TO THE KVA RATING OF THE INVERTER. TWO INVERTERS ISOLATED BY ONE TRANSFORMER SHALL HAVE THREE WINDINGS TOTAL; ONE SECONDARY WINDING AND TWO PRIMARY WINDINGS. EACH PRIMARY WINDING MUST HAVE A KVA RATING AT LEAST BE EQUAL TO THE KVA RATING FOR THE INVERTER THIS WINDING ISOLATES. THE SECONDARY WINDING MUST HAVE A KVA RATING AT LEAST BE EQUAL TO THE SUM OF THE KVA RATING FOR THE TWO INVERTERS CONNECTED TO THE TRANSFORMER. THE TWO PRIMARY WINDINGS SHALL HAVE THE SAME VOLTAGE, WINDING CONFIGURATION AND BIL. THE THREE WINDINGS SHALL BE CONSTRUCTED IN A LOW-HIGH-LOW CONFIGURATION.

3. TRANSFORMER IMPEDANCE

FOR TRANSFORMERS WITH THREE WINDINGS, THE PERCENT IMPEDANCE BETWEEN BOTH LOW VOLTAGE PRIMARY WINDINGS MUST BE GREATER THAN 7%. THE PERCENT IMPEDANCE BETWEEN LOW VOLTAGE WINDING #1 AND THE HIGH VOLTAGE WINDING AS WELL AS PERCENT IMPEDANCE BETWEEN LOW VOLTAGE WINDING #2 AND THE HIGH VOLTAGE WINDING MUST SATISFY THE MINIMUM IMPEDANCE REQUIREMENTS IN TABLE 1 ON THE FOLLOWING PAGE. FOR STANDARD TWO WINDING TRANSFORMERS, THE TRANSFORMER IMPEDANCE VOLTAGE Z(%) MUST SATISFY THE CONDITIONS IN TABLE 1.

Number of 380V Windings (Inverters)	Impedance (Absolute Minimum)
1	1.80%
2	High-Low#1 4%
	High-Low #2 4%
	Low#1-Low#2 7%
Table 1 – Percent Impedance %Z	

4. PRIMARY CONFIGURATION

THE PRIMARY WINDING(S) SHALL BE COMPLETELY FLOATING OR GROUNDED THROUGH A HIGH IMPEDANCE (>1MOHMS).
380V NOMINAL DELTA
OR
380V NOMINAL WYE WITH THE NEUTRAL FULLY INSULATED FROM GROUND AND CONSTRUCTED SUCH THAT THE NEUTRAL TERMINAL IS NOT ACCESSIBLE

5. TAPS

THE TRANSFORMER SHALL BE FURNISHED WITH SECONDARY CAPACITY HIGH-VOLTAGE TAPS WITH A MINIMUM OF TWO - 2½% TAPS ABOVE AND BELOW THE RATED NAMEPLATE VOLTAGE.

6. SECONDARY CONFIGURATION

THE SECONDARY WINDING CONFIGURATION SHALL BE EITHER:
DELTA
OR
FLOATING WYE
OR
GROUNDED WYE
NOTE FOR GROUNDED WYE CONFIGURATION: A TRANSFORMER CONFIGURATION OF SOLIDLY GROUNDED WYE ON THE SECONDARY AND DELTA ON THE PRIMARY INDUCES NEUTRAL CURRENT TO THE TRANSFORMER AND THROUGH THREE-PHASE OVER CURRENT PROTECTION DEVICES ON THE SECONDARY SIDE OF THE TRANSFORMER. THE ADDITIONAL CURRENT COULD LEAD TO UNINTENDED ACTIVATION OF THE OVER CURRENT PROTECTION. IT MAY ALSO REDUCE THE INVERTER'S ABILITY TO DETECT A SINGLE OPEN PHASE CONDITION. FOR THIS TRANSFORMER CONFIGURATION, THE CUSTOMER MUST PROVIDE SUPPLEMENTAL SINGLE OPEN PHASE DETECTION.

7. ELECTROSTATIC SHIELD

TRANSFORMERS WITH THREE WINDINGS SHALL INCLUDE ELECTROSTATIC SHIELDING BETWEEN THE LOW AND HIGH VOLTAGE WINDINGS. THE SHIELDING MUST BE GROUNDED TO THE TRANSFORMER TANK OR ENCLOSURE.

8. LOW VOLTAGE BUSHINGS AND TERMINALS

THE MINIMUM QUANTITY OF CONNECTION HOLES MUST ACCOMMODATE THE TOTAL NUMBER OF CONDUCTOR TERMINATIONS PER PHASE. PAD MOUNT DISTRIBUTION TRANSFORMERS SHALL BE PROVIDED WITH SPADE-TYPE BUSHINGS.

9. TANK GROUNDING

CLAMP-TYPE TANK GROUNDING CONNECTIONS SHALL BE PROVIDED FOR PAD MOUNT DISTRIBUTION TRANSFORMERS IN ACCORDANCE WITH ANSI C57.12.34

10. SUBMITTAL DRAWINGS

FINAL TRANSFORMER SUBMITTAL DRAWINGS MUST BE RECEIVED AND REVIEWED BY SOLECTRIA PRIOR TO INVERTER SHIP DATE.

ELECTRICAL NOTES

GENERAL NOTES

1. ALL ELECTRICAL WORK SHALL COMPLY WITH THE 2011 NATIONAL ELECTRIC CODE AS AMENDED BY APPLICABLE STATE AND LOCAL CODES.
2. EACH UNGROUNDED CONDUCTOR OF THE MULTIWIRE BRANCH CIRCUIT WILL BE IDENTIFIED BY PHASE AND SYSTEM PER ART 210.5.
3. ALL EQUIPMENT SHALL BE LISTED BY A NRTL IN COMPLIANCE WITH ART 110.3.
4. DC CONDUCTORS INSIDE BUILDING SHALL BE IN METALLIC RACEWAY PER ART 690.31(E).
5. ALL WIRES SHALL BE PROVIDED WITH STRAIN RELIEF AT ALL ENTRY INTO BOXES AS REQUIRED BY NRTL LISTING.
6. INSTALL PARALLEL CONDUCTORS PER ART 310.10(H)
7. ALL VALUES FOR IMP AND ISC AND VMP ARE MANUFACTURER'S LISTED DATA UNCORRECTED BY NEC.
8. REFER TO CURRENT MANUFACTURER'S PLANNING AND INSTALLATION MANUAL FOR TORQUE SPECS FOR ALL BOLTS AND TERMINAL CONNECTIONS.
9. DC STRING CIRCUITS SHALL BE RUN IN OUTDOOR ROOFTOP AMBIENT CONDITIONS.
10. DC BRANCH CIRCUITS RUN IN OUTDOOR ROOFTOP AMBIENT CONDITIONS SHALL BE INSTALLED > 3.5 INCHES ABOVE ROOF SURFACE UON.
11. PV INVERTER CONTAINS INTEGRATED AC AND DC DISCONNECTS.
12. BURIED CONDUCTORS SHALL BE BURIED TO THE MINIMUM DEPTH SPECIFIED IN ART. 300.5 FOR CIRCUITS 600V AND UNDER AND ART. 300.50 FOR CIRCUITS ABOVE 600V.
13. ALL CONDUCTORS ARE COPPER UON.
14. USE NON-METALLIC UV RATED TIE WRAPS FOR BUNDLED PV WIRE.
15. ALL LINE SIDE AND LOAD SIDE TERMINATIONS OF ALUMINUM AND COPPER CONDUCTORS SHAL BE MADE WITH HIGH PRESS CRIMP LUGS ON BUSSING UNLESS OTHERWISE NOTED.
16. ALL TERMINATIONS OF ALUMINUM CONDUCTORS SHALL BE PROPERLY INSTALLED WITH BEST PRACTICE PROCEDURES THAT INCLUDE BUT NOT LIMITED TO: USE OF TERMINATION EQUIPMENT RATED FOR ALUMINUM AT THE CONDUCTOR TEMPERATURE, CURRENT, AND VOLTAGE; ALLOWANCE FOR MOVEMENT DUE TO THERMAL EXPANSION/CONTRACTION; EXPOSED ALUMINUM SHALL BE PROPERLY COATED WITH ANTI-OXIDIZATION COMPOUND; TERMINALS ARE TORQUE AND MARKED TO REQUIRED SETTINGS WITH CALIBRATED DEVICES.

GROUNDING NOTES

1. SINGLE-CONDUCTOR CABLE USED AS A GROUNDED CONDUCTOR IN PHOTOVOLTAIC POWER SYSTEMS SHALL BE IDENTIFIED AT THE TIME OF INSTALLATION BY DISTINCTIVE WHITE MARKING AT ALL TERMINATIONS PER ART 200.6.
2. THE DC GEC SHALL BE CONTINUOUS FROM THE INVERTER GROUND BUSBAR TO THE MAIN ELECTRICAL SERVICE GROUNDING ELECTRODE SYSTEM. THE DC GEC SHALL BE ATTACHED TO THE GROUND ELECTRODE USING AN IRREVERSIBLE MEANS AS CALLED OUT IN ART 250.64 AND 690.47.
3. PV INVERTER CONTAINS AN INTEGRATED GFDI CIRCUIT. DO NOT BOND THE GROUNDED DC CONDUCTOR TO GROUND EXCEPT THROUGH THE INVERTER GFDI.
4. ALL EXPOSED METAL PARTS (MODULE FRAMES, RAIL, PIPE, BOXES, ETC) SHALL BE GROUNDED USING TIN-PLATED COPPER LAY-IN LUGS OR GROUNDING CLIPS LISTED FOR THE PURPOSE. RAIL CLAMPS SHALL BE MADE ELECTRICALLY CONTINUOUS WITH ATTACHED RAIL.
5. RBI SOLAR RACKING SYSTEMS SHALL BE BONDED PER MANUFACTURER'S UL 2703 INSTRUCTIONS.
6. MIN #10 BARE COPPER EGC AT SOURCE CIRCUITS SHALL BE ROUTED SECURELY TO MOUNTING HARDWARE IN A MANNER THAT PROTECTS FROM PHYSICAL HARM. #6 BARE COPPER EGC FOR AREAS SUBJECT TO PHYSICAL DAMAGE.
7. MODULE FRAMES SHALL BE GROUNDED AT THE LISTED LOCATION PROVIDED BY THE MANUFACTURER OR USING LISTED THIRD-PARTY HARDWARE ONLY IF SPECIFICALLY REFERRED TO IN MANUFACTURE'S INSTRUCTIONS PER UL 1703.
8. BOTH ENDS OF ALL METALLIC CONDUIT CONTAINING GROUNDING ELECTRODE CONDUCTORS SHALL BE BONDED PER ART 250.64(E).
9. GROUNDING ELECTRODE CONDUCTOR TO BE BONDED TO (E) GROUNDING ELECTRODE PER ART 250.68.
10. GROUNDING ELECTRODE CONDUCTOR SIZED PER ART 690.47(C).
11. INCREASES IN EQUIPMENT GROUNDING CONDUCTOR SIZE TO ADDRESS VOLTAGE CONSIDERATIONS SHALL NOT BE REQUIRED PER ART 690.45(A).
12. INSTALLATION SHALL COMPLY WITH ART 250.52, 250.53.
13. CIRCUITS OVER 250V TO GROUND SHALL COMPLY WITH ART 250.97, 250.92(B)

MARKING AND SIGNAGE

14. SEE SHEET PV17 FOR MARKING AND SIGNAGE PLAN.

INTERCONNECTION NOTES

1. LOAD SIDE INTERCONNECTIONS SHALL COMPLY WITH ART. 705.12(D) AND ART 230 FOR THE INSTALLATION OF AN ADDITIONAL SERVICE ENTRANCE
2. LOAD SIDE INTERCONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE EQUIPMENT MANUFACTURER'S INSTRUCTIONS AND SHALL NOT INVALIDATE THE NRTL LISTING OF THE EQUIPMENT.
3. EMT OR SCH 40 PVC TYPE CONDUIT SHALL BE USED TO ENCLOSE CONDUCTORS BETWEEN A LOAD SIDE INTERCONNECTION AND THE FIRST OCP IN THE INVERTER OUTPUT CIRCUIT.

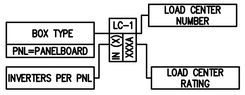
MODULE SPECIFICATIONS AND MAXIMUM SYSTEM VOLTAGE CALCULATION

Photovoltaic Module Electrical Specifications:			Model:	Canadian Solar CS6X-310P		
Voc=	44.9	V at STC				
Vmp=	36.4	V at STC				
Isc=	9.08	A at STC	**Temperature Data**			
Imp=	8.52	A at STC	ASHRAE Mean Low Temp		-15	deg C
Tvoc=	-0.15266	V/deg C	ASHRAE 2% Dry Bulb Temp		32	deg C
Tisc=	5.902	mA/deg C				
Tvmp=	-0.15652	V/deg C				
Sample Calculation #1: Maximum System DC Voltage per art 690.7						
Vmax=	# of series connected modules x (Voc at STC - (25 deg C - Low Temp) x Tvoc V/deg C)					
	=24 x (44.9V - (25 - -15) deg C x -0.15266 V/deg C)					
	=1224V					

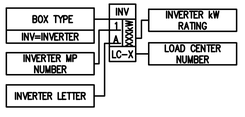
LEGEND

- 2-POLE CIRCUIT BREAKER
- 3-POLE CIRCUIT BREAKER
- 2-POLE SWITCH
- 3-POLE SWITCH
- FUSE
- GROUNDING ELECTRODE
- M — kWH METER
- CURRENT TRANSDUCER
- TRANSFORMER (DELTA-WYE)
- DC — PHOTOVOLTAIC MODULE
- N — NEUTRAL BAR
- G — GROUND BAR
- C / X X / A / XX — (N) DC COMBINER BOX
- TERMINAL BLOCK
- 65,000AFC — AVAILABLE FAULT CURRENT
- IN-AXX — CIRCUIT TAG
- X"C. XXX XXXFT — CONDUIT TAG

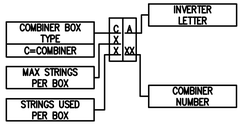
INVERTER PANEL BOARD NUMBERING SYSTEM



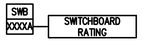
INVERTER NUMBERING SYSTEM



COMBINER BOX NUMBERING SYSTEM



SWITCHBOARD NUMBERING SYSTEM



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CONNECTICUT MUNICIPAL ELECTRIC ENERGY COOPERATIVE – GROTON
4052.32 KW GROUND MOUNT PV SYSTEM

CUSTOMER: Connecticut Municipal Electric Energy Cooperative – Groton
1280 Poquonnock Road
Groton, CT
860-889-4088

REVISIONS

REV	BY	DATE	COMMENTS

JOB DETAILS

AHJ: New London
MODULES: (13072) CANADIAN SOLAR # CS6X-310P
MOUNTING SYSTEM: RBI SOLAR GROUND MOUNT
INVERTER: Multiple Inverters
DESIGN: P KIRSCHNER
CHECKED BY: EZ
MARKET: COMM
PROJECT MANAGER: ROB MILLER
DATE: 8/24/15
PAYMENT TYPE: PPA
SHEET NAME: ELECTRICAL NOTES
JOB NUMBER: JB-0632046-00
SHEET: PV 8
REV: 0

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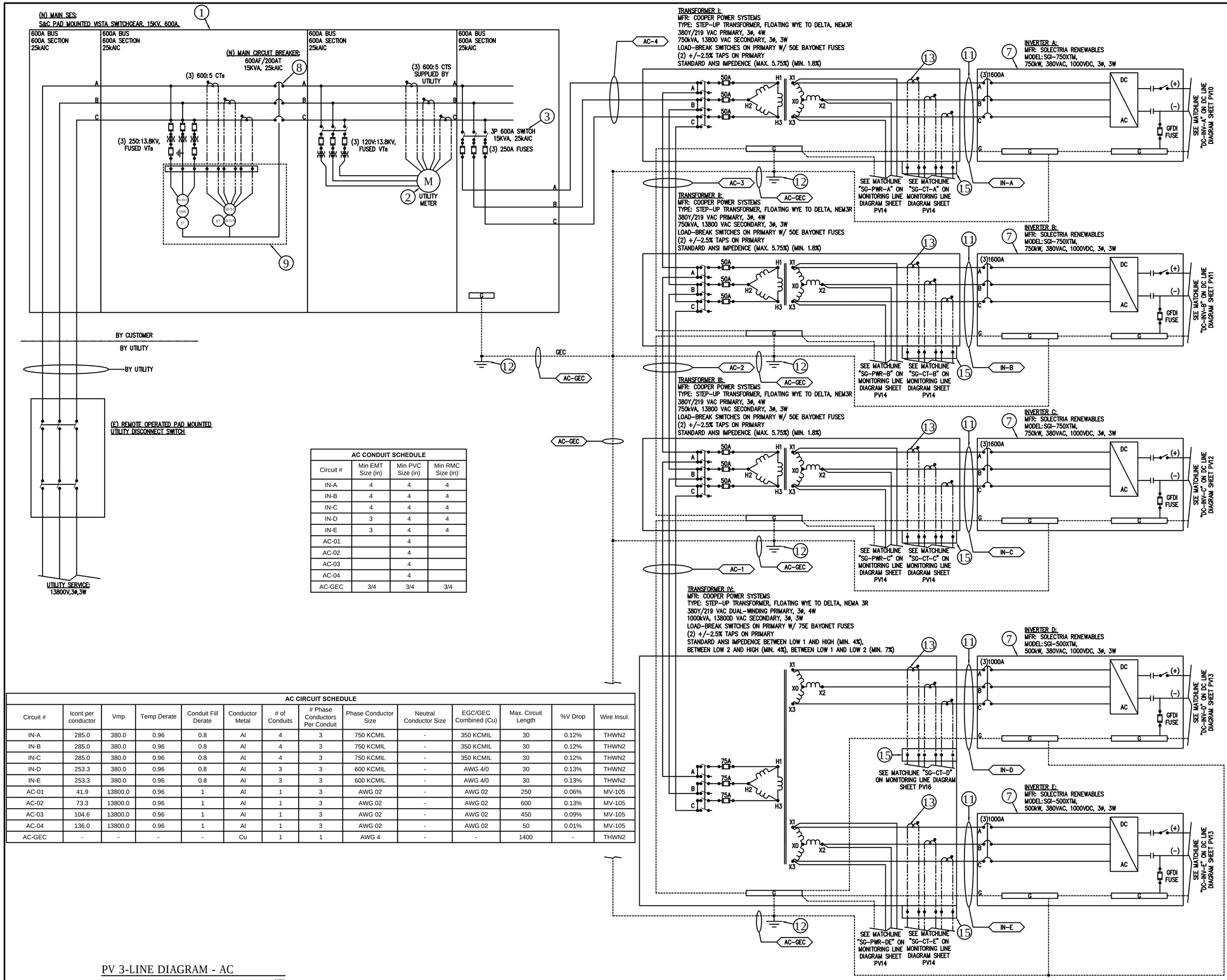

AC CONDUIT SCHEDULE			
Circuit #	Min EMT Size (in)	Min PVC Size (in)	Min RMC Size (in)
IN-A	4	4	4
IN-B	4	4	4
IN-C	4	4	4
IN-D	3	4	4
IN-E	3	4	4
AC-01		4	
AC-02		4	
AC-03		4	
AC-04		4	
AC-GEC	3/4	3/4	3/4

AC CIRCUIT SCHEDULE												
Circuit #	Icont per conductor	Vmp	Temp Derate	Conduit Fill Derate	Conductor Metal	# of Conduits	# Phase Conductors Per Conduit	Phase Conductor Size	Neutral Conductor Size	EGC/GEC Combined (Cu)	Max. Circuit Length	%V Drop	Wire Insul.
IN-A	285.0	380.0	0.96	0.8	Al	4	3	750 KCMIL	-	350 KCMIL	30	0.12%	THWN2
IN-B	285.0	380.0	0.96	0.8	Al	4	3	750 KCMIL	-	350 KCMIL	30	0.12%	THWN2
IN-C	285.0	380.0	0.96	0.8	Al	4	3	750 KCMIL	-	350 KCMIL	30	0.12%	THWN2
IN-D	253.3	380.0	0.96	0.8	Al	3	3	600 KCMIL	-	AWG 4/0	30	0.13%	THWN2
IN-E	253.3	380.0	0.96	0.8	Al	3	3	600 KCMIL	-	AWG 4/0	30	0.13%	THWN2
AC-01	41.9	13800.0	0.96	1	Al	1	3	AWG 02	-	AWG 02	250	0.06%	MV-105
AC-02	73.3	13800.0	0.96	1	Al	1	3	AWG 02	-	AWG 02	600	0.13%	MV-105
AC-03	104.6	13800.0	0.96	1	Al	1	3	AWG 02	-	AWG 02	450	0.09%	MV-105
AC-04	136.0	13800.0	0.96	1	Al	1	3	AWG 02	-	AWG 02	50	0.01%	MV-105
AC-GEC	-	-	-	-	Cu	1	1	AWG 4	-	-	1400	-	THWN2

PV 3-LINE DIAGRAM - AC

NTS

KEYED NOTES

1. (E) MAIN SWITCHGEAR AND (N) POINT OF AC INTERCONNECTION. ALL CONNECTIONS MADE INSIDE (E) SWITCHGEAR AT OTHER THAN CIRCUIT BREAKERS OR FUSED SWITCHES LISTED FOR USE WITH THAT SWITCHGEAR SHALL BE PERFORMED FOLLOWING MANUFACTURERS INSTRUCTIONS OR BE RE-LISTED BY A NRTL. ALL TERMINATIONS OF ALUMINUM CONDUCTORS SHALL BE WITH HIGH PRESS CRIMP LUGS ONLY. WARNING LABEL DETAIL 1/PV20.
2. (E) UTILITY LOAD METER.
3. (N) PV SYSTEM UTILITY AC DISCONNECT "ACDS-1". WARNING LABEL DETAIL 2/PV17.
4. NOT USED.
5. NOT USED.
6. NOT USED.
7. (N) GRID-INTERACTIVE PV INVERTER LISTED TO UL 1741 WITH GROUND FAULT DETECTION & INTERRUPTION. WARNING LABEL DETAIL 8/PV20.
8. MEDIUM VOLTAGE BREAKER IS SHUNT TRIP OPERATED IN CONJUCTION WITH OVERCURRENT AND OVER/UNDER VOLTAGE/FREQUENCY RELAYS. 600A FRAME WITH 200A TRIP UNIT.
9. DISTRIBUTED PROTECTION RELAY (SEL-351A) USED TO CONTROL THE MAIN OVERCURRENT PROTECTION DEVICE.
10. NOT USED.
11. CONDUCTORS RUN IN PARALLEL SHALL BE INSTALLED PER ART 310.4/310.10(H) AND 250.122 (F)
12. INSTALL 5/8"x8' CU AUX GND ROD FOR LIGHTNING PROTECTION PER ART 250.54. CONNECT TO EQUIPMENT GROUND BAR WITH #6 BARE CU.
13. (N) SOLID CORE CURRENT TRANSFORMERS:
    - H1 LABEL FACES TOWARD SOURCE
    - WHITE WIRES TO I_{11}, I_{21}, I_{31} TERMINALS IN SG METER
    - BLACK WIRES TO I_{12}, I_{22}, I_{32} TERMINALS IN SG METER
14. NOT USED.
15. (N) SHORTING TERMINAL BLOCK - 600V, 50A, 6 POLE; GE #1KU6SC

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Connecticut Municipal Electric Energy Cooperative – Groton
1280 Poquonnock Road
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860-889-4088

REVISIONS

REV	BY	DATE	COMMENTS

JOB DETAILS

JOB: New London
MODULES: (13072) CANADIAN SOLAR # CS6X-310P
MOUNTING SYSTEM: RBI SOLAR GROUND MOUNT
INVERTER: Multiple Inverters
DESIGN: P KIRSCHNER
CHECKED BY: EZ
MARKET: COMM
PROJECT MANAGER: ROB MILLER
DATE: 8/24/15
PAYMENT TYPE: PPA
SHEET NAME: AC LINE DIAGRAM
JOB NUMBER: JB-0632046-00
SHEET: PV 9
REV: 0

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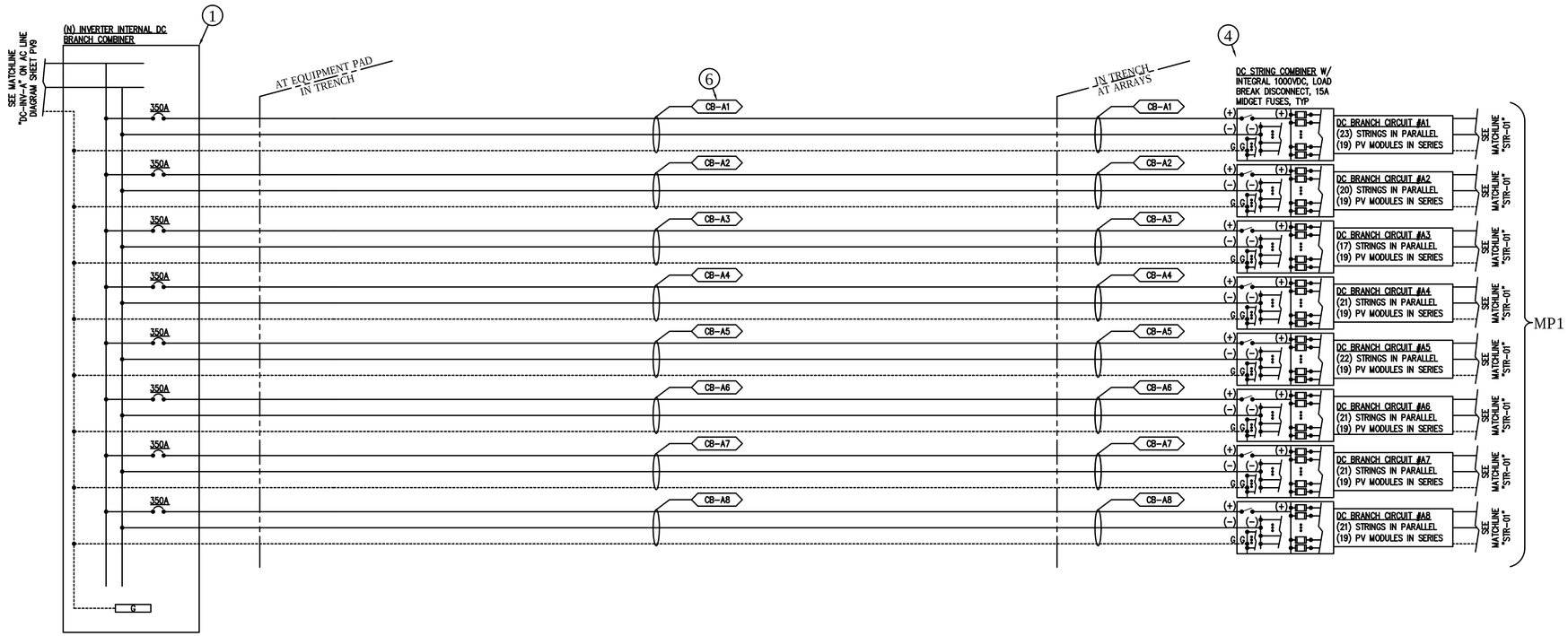


KEYED NOTES

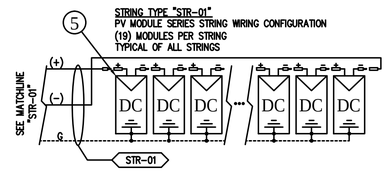
1. (N) INVERTER INTERNAL BREAKER DC BRANCH COMBINER.
2. NOT USED.
3. NOT USED
4. (N) PV SOURCE CIRCUIT DC COMBINER BOXES WITH INTEGRATED LOAD-BREAK DISCONNECT SWITCH AND KLKD SERIES 1000VDC FAST-ACTING PHOTOVOLTAIC MIDGET FUSES. WARNING LABEL DETAIL 3/PV17.
5. (N) PV MODULE LISTED TO UL 1703.
6. ALL DC CIRCUITS ARE ADEQUATELY SIZED FOR TEMPERATURE AND CONDUIT FILL DERATE SO THAT ANY (2) OR (3) CIRCUITS CAN BE ROUTED TOGETHER IN (1) CONDUIT PROVIDED THE CONDUIT IS UP-SIZED TO ACCOMMODATE. THE EGC SHALL BE SIZED FOR THE LARGEST SINGLE OVERCURRENT DEVICE PROTECTING CONDUCTORS IN THE RACEWAY PER ART 250.122(C).

DC CIRCUIT CALCULATIONS

Circuit #	Module	# mods per string	# strings	Imp	Isc	Voc	Vmp at STC	Temp Derate	Conduit Fill Derate	Max. 1 way length (ft)	%Vdrop
STR-01	Canadian Solar CS6X-310P	19	1	8.52	9.08	853.1	691.6	0.96	0.5	400	1.84%
CB-A1	Canadian Solar CS6X-315P	19	23	198.03	211.1	856.9	695.4	0.96	0.8	550	1.39%
CB-A2	Canadian Solar CS6X-315P	19	20	172.2	183.6	856.9	695.4	0.96	0.8	450	0.99%
CB-A3	Canadian Solar CS6X-315P	19	17	146.37	156.1	856.9	695.4	0.96	0.8	400	0.74%
CB-A4	Canadian Solar CS6X-315P	19	21	180.81	192.8	856.9	695.4	0.96	0.8	350	0.81%
CB-A5	Canadian Solar CS6X-315P	19	22	189.42	202	856.9	695.4	0.96	0.8	300	0.72%
CB-A6	Canadian Solar CS6X-315P	19	21	180.81	192.8	856.9	695.4	0.96	0.8	250	0.58%
CB-A7	Canadian Solar CS6X-315P	19	21	180.81	192.8	856.9	695.4	0.96	0.8	200	0.46%
CB-A8	Canadian Solar CS6X-315P	19	21	180.81	192.8	856.9	695.4	0.96	0.8	150	0.35%

DC CIRCUIT SCHEDULE

Circuit #	Conductor Metal	# of Conduits	# CC Conductors	Conductor Size	EGC Size	Max. 1 way length (ft)	Wire Insul.	Min EMT Size (in)	Min PVC Size (in)	Min RMC Size (in)
STR-01	Cu	1	1	AWG 12	AWG 10	400	PVWire	-	-	-
CB-A1	Al	2	2	AWG 4/0	AWG 01	550	THWN2	2	2	2
CB-A2	Al	2	2	AWG 4/0	AWG 01	450	THWN2	2	2	2
CB-A3	Al	2	2	AWG 4/0	AWG 01	400	THWN2	2	2	2
CB-A4	Al	2	2	AWG 4/0	AWG 01	350	THWN2	2	2	2
CB-A5	Al	2	2	AWG 4/0	AWG 01	300	THWN2	2	2	2
CB-A6	Al	2	2	AWG 4/0	AWG 01	250	THWN2	2	2	2
CB-A7	Al	2	2	AWG 4/0	AWG 01	200	THWN2	2	2	2
CB-A8	Al	2	2	AWG 4/0	AWG 01	150	THWN2	2	2	2



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CONNECTICUT MUNICIPAL ELECTRIC ENERGY COOPERATIVE – GROTON
4052.32 KW GROUND MOUNT PV SYSTEM
Connecticut Municipal Electric Energy Cooperative – Groton
1280 Poquonnock Road
Groton, CT
860-889-4088

REVISIONS

REV	BY	DATE	COMMENTS

JOB DETAILS

AHJ: New London
MODULES: (13072) CANADIAN SOLAR # CS6X-310P
MOUNTING SYSTEM: RBI SOLAR GROUND MOUNT
INVERTER: Multiple Inverters
DESIGN: P KIRSCHNER
CHECKED BY: EZ
MARKET: COMM
PROJECT MANAGER: ROB MILLER
DATE: 8/24/15
PAYMENT TYPE: PPA
SHEET NAME: DC LINE DIAGRAM
JOB NUMBER: JB-0632046-00
SHEET: PV 10
REV: 0

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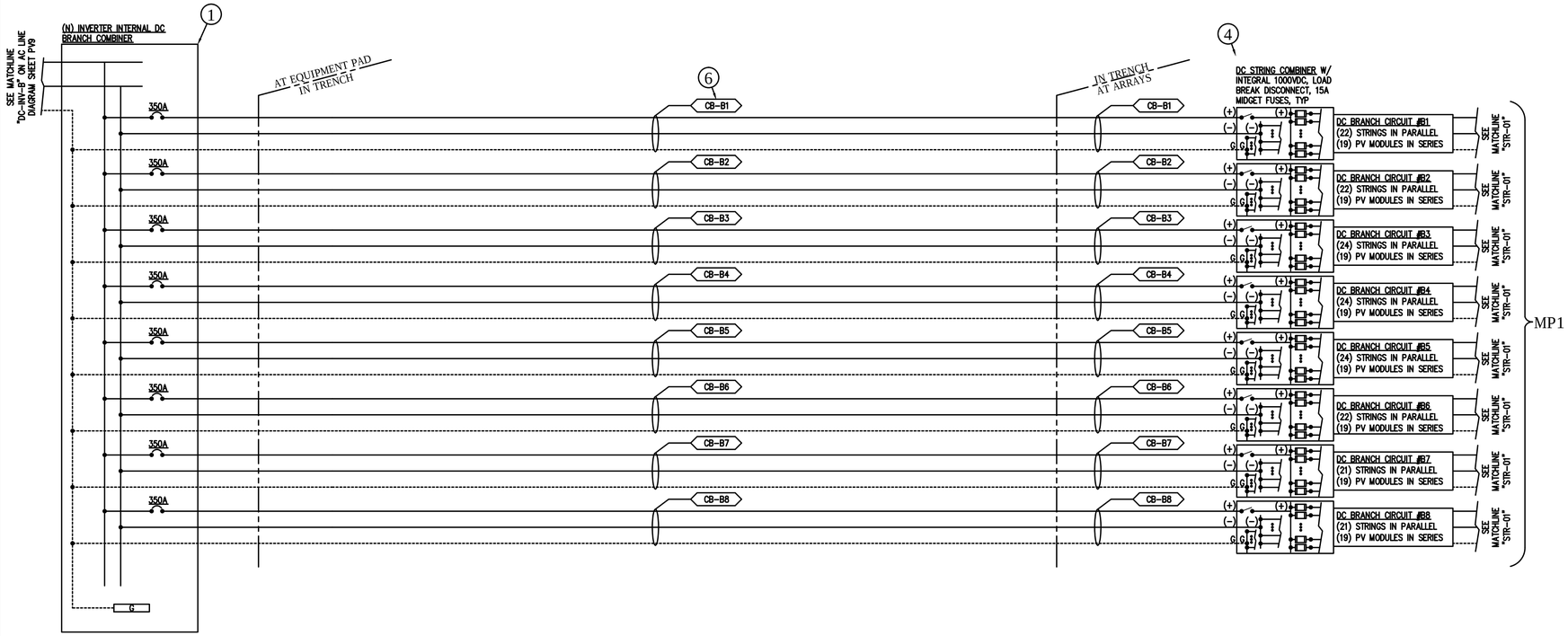


KEYED NOTES

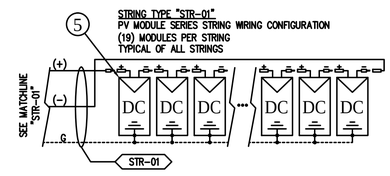
1. (N) INVERTER INTERNAL BREAKER DC BRANCH COMBINER.
2. NOT USED.
3. NOT USED
4. (N) PV SOURCE CIRCUIT DC COMBINER BOXES WITH INTEGRATED LOAD-BREAK DISCONNECT SWITCH AND KLKD SERIES 1000VDC FAST-ACTING PHOTOVOLTAIC MIDGET FUSES. WARNING LABEL DETAIL 3/PV17.
5. (N) PV MODULE LISTED TO UL 1703.
6. ALL DC CIRCUITS ARE ADEQUATELY SIZED FOR TEMPERATURE AND CONDUIT FILL DERATE SO THAT ANY (2) OR (3) CIRCUITS CAN BE ROUTED TOGETHER IN (1) CONDUIT PROVIDED THE CONDUIT IS UP-SIZED TO ACCOMMODATE. THE EGC SHALL BE SIZED FOR THE LARGEST SINGLE OVERCURRENT DEVICE PROTECTING CONDUCTORS IN THE RACEWAY PER ART 250.122(C).

DC CIRCUIT CALCULATIONS

Circuit #	Module	# mods per string	# strings	Imp	Isc	Voc	Vmp at STC	Temp Derate	Conduit Fill Derate	Max. 1 way length (ft)	%Vdrop
STR-01	Canadian Solar CS6X-310P	19	1	8.52	9.08	853.1	691.6	0.96	0.5	400	1.84%
CB-B1	Canadian Solar CS6X-315P	19	22	189.42	202	856.9	695.4	0.96	0.8	500	1.20%
CB-B2	Canadian Solar CS6X-315P	19	22	189.42	202	856.9	695.4	0.96	0.8	350	0.84%
CB-B3	Canadian Solar CS6X-315P	19	24	206.64	220.3	856.9	695.4	0.96	0.8	300	0.79%
CB-B4	Canadian Solar CS6X-315P	19	24	206.64	220.3	856.9	695.4	0.96	0.8	250	0.66%
CB-B5	Canadian Solar CS6X-315P	19	24	206.64	220.3	856.9	695.4	0.96	0.8	200	0.53%
CB-B6	Canadian Solar CS6X-315P	19	22	189.42	202	856.9	695.4	0.96	0.8	150	0.36%
CB-B7	Canadian Solar CS6X-315P	19	21	180.81	192.8	856.9	695.4	0.96	0.8	100	0.23%
CB-B8	Canadian Solar CS6X-315P	19	21	180.81	192.8	856.9	695.4	0.96	0.8	50	0.12%

DC CIRCUIT SCHEDULE

Circuit #	Conductor Metal	# of Conduits	# CC Conductors	Conductor Size	EGC Size	Max. 1 way length (ft)	Wire Insul.	Min EMT Size (in)	Min PVC Size (in)	Min RMC Size (in)
STR-01	Cu	1	1	AWG 12	AWG 10	400	PVWire	-	-	-
CB-B1	Al	2	2	AWG 4/0	AWG 01	500	THWN2	2	2	2
CB-B2	Al	2	2	AWG 4/0	AWG 01	350	THWN2	2	2	2
CB-B3	Al	2	2	AWG 4/0	AWG 01	300	THWN2	2	2	2
CB-B4	Al	2	2	AWG 4/0	AWG 01	250	THWN2	2	2	2
CB-B5	Al	2	2	AWG 4/0	AWG 01	200	THWN2	2	2	2
CB-B6	Al	2	2	AWG 4/0	AWG 01	150	THWN2	2	2	2
CB-B7	Al	2	2	AWG 4/0	AWG 01	100	THWN2	2	2	2
CB-B8	Al	2	2	AWG 4/0	AWG 01	50	THWN2	2	2	2



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4052.32 KW GROUND MOUNT PV SYSTEM
Connecticut Municipal Electric Energy Cooperative – Groton
1280 Poquonnock Road
Groton, CT
860-889-4088

REVISIONS

REV	BY	DATE	COMMENTS

JOB DETAILS

AHJ: New London
MODULES: (13072) CANADIAN SOLAR # CS6X-310P
MOUNTING SYSTEM: RBI SOLAR GROUND MOUNT
INVERTER: Multiple Inverters
DESIGN: P KIRSCHNER
CHECKED BY: EZ
MARKET: COMM
PROJECT MANAGER: ROB MILLER
DATE: 8/24/15
PAYMENT TYPE: PPA
SHEET NAME: DC LINE DIAGRAM
JOB NUMBER: JB-0632046-00
SHEET: PV 11
REV: 0

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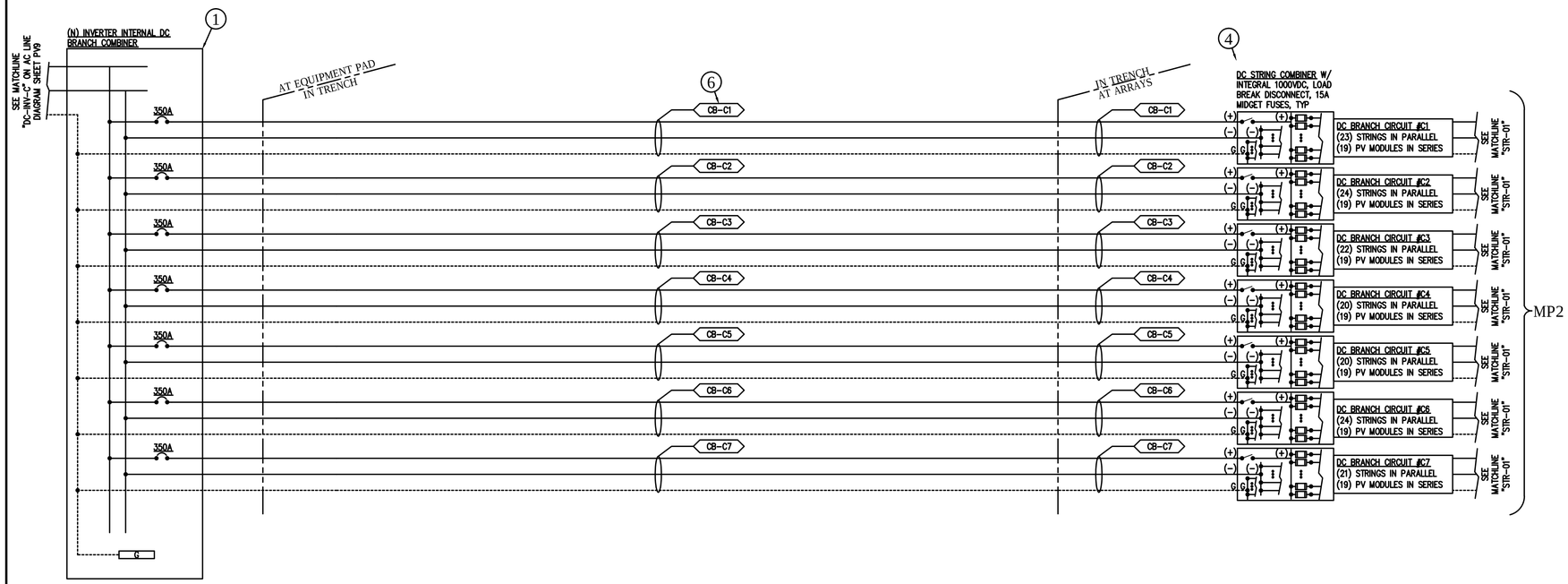


KEYED NOTES

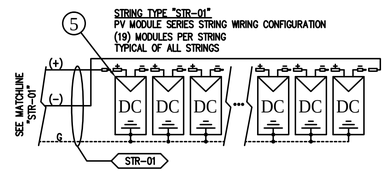
1. (N) INVERTER INTERNAL BREAKER DC BRANCH COMBINER.
2. NOT USED.
3. NOT USED
4. (N) PV SOURCE CIRCUIT DC COMBINER BOXES WITH INTEGRATED LOAD-BREAK DISCONNECT SWITCH AND KLKD SERIES 1000VDC FAST-ACTING PHOTOVOLTAIC MIDGET FUSES. WARNING LABEL DETAIL 3/PV17.
5. (N) PV MODULE LISTED TO UL 1703.
6. ALL DC CIRCUITS ARE ADEQUATELY SIZED FOR TEMPERATURE AND CONDUIT FILL DERATE SO THAT ANY (2) OR (3) CIRCUITS CAN BE ROUTED TOGETHER IN (1) CONDUIT PROVIDED THE CONDUIT IS UP-SIZED TO ACCOMMODATE. THE EGC SHALL BE SIZED FOR THE LARGEST SINGLE OVERCURRENT DEVICE PROTECTING CONDUCTORS IN THE RACEWAY PER ART 250.122(C).

DC CIRCUIT CALCULATIONS

Circuit #	Module	# mods per string	# strings	Imp	Isc	Voc	Vmp at STC	Temp Derate	Conduit Fill Derate	Max. 1 way length (ft)	%Vdrop
STR-01	Canadian Solar CS6X-310P	19	1	8.52	9.08	853.1	691.6	0.96	0.5	400	1.84%
CB-C1	Canadian Solar CS6X-315P	19	23	198.03	211.1	856.9	695.4	0.96	0.8	450	1.13%
CB-C2	Canadian Solar CS6X-315P	19	24	206.64	220.3	856.9	695.4	0.96	0.8	300	0.79%
CB-C3	Canadian Solar CS6X-315P	19	22	189.42	202	856.9	695.4	0.96	0.8	100	0.24%
CB-C4	Canadian Solar CS6X-315P	19	20	172.2	183.6	856.9	695.4	0.96	0.8	50	0.11%
CB-C5	Canadian Solar CS6X-315P	19	20	172.2	183.6	856.9	695.4	1	0.8	50	0.11%
CB-C6	Canadian Solar CS6X-315P	19	24	206.64	220.3	856.9	695.4	1	0.8	100	0.26%
CB-C7	Canadian Solar CS6X-315P	19	21	180.81	192.8	856.9	695.4	1	0.8	250	0.58%

DC CIRCUIT SCHEDULE

Circuit #	Conductor Metal	# of Conduits	# CC Conductors	Conductor Size	EGC Size	Max. 1 way length (ft)	Wire Insul.	Min EMT Size (in)	Min PVC Size (in)	Min RMC Size (in)
STR-01	Cu	1	1	AWG 12	AWG 10	400	PVWire	-	-	-
CB-C1	Al	2	2	AWG 4/0	AWG 01	450	THWN2	2	2	2
CB-C2	Al	2	2	AWG 4/0	AWG 01	300	THWN2	2	2	2
CB-C3	Al	2	2	AWG 4/0	AWG 01	100	THWN2	2	2	2
CB-C4	Al	2	2	AWG 4/0	AWG 01	50	THWN2	2	2	2
CB-C5	Al	2	2	AWG 4/0	AWG 01	50	THWN2	2	2	2
CB-C6	Al	2	2	AWG 4/0	AWG 01	100	THWN2	2	2	2
CB-C7	Al	2	2	AWG 4/0	AWG 01	250	THWN2	2	2	2



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REVISIONS

REV	BY	DATE	COMMENTS

JOB DETAILS

AHJ: New London
MODULES: (13072) CANADIAN SOLAR # CS6X-310P
MOUNTING SYSTEM: RBI SOLAR GROUND MOUNT
INVERTER: Multiple Inverters
DESIGN: P KIRSCHNER
CHECKED BY: EZ
MARKET: COMM
PROJECT MANAGER: ROB MILLER
DATE: 8/24/15
PAYMENT TYPE: PPA
SHEET NAME: DC LINE DIAGRAM
JOB NUMBER: JB-0632046-00
SHEET: PV 12
REV: 0

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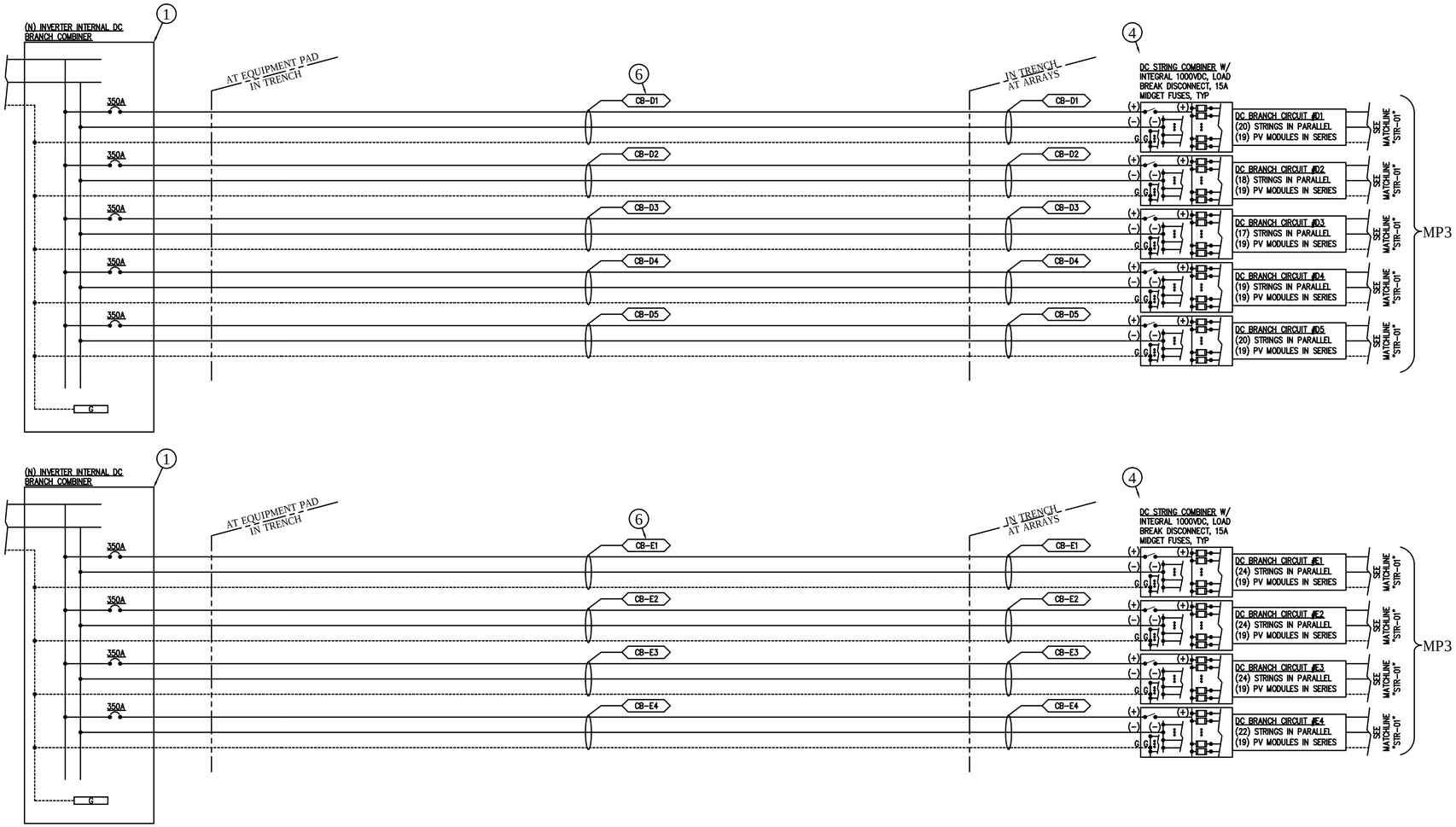


KEYED NOTES

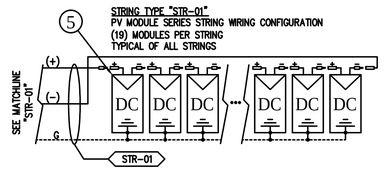
1. (N) INVERTER INTERNAL BREAKER DC BRANCH COMBINER.
2. NOT USED.
3. NOT USED
4. (N) PV SOURCE CIRCUIT DC COMBINER BOXES WITH INTEGRATED LOAD-BREAK DISCONNECT SWITCH AND KLKD SERIES 1000VDC FAST-ACTING PHOTOVOLTAIC MIDGET FUSES. WARNING LABEL DETAIL 3/PV17.
5. (N) PV MODULE LISTED TO UL 1703.
6. ALL DC CIRCUITS ARE ADEQUATELY SIZED FOR TEMPERATURE AND CONDUIT FILL DERATE SO THAT ANY (2) OR (3) CIRCUITS CAN BE ROUTED TOGETHER IN (1) CONDUIT PROVIDED THE CONDUIT IS UP-SIZED TO ACCOMMODATE. THE EGC SHALL BE SIZED FOR THE LARGEST SINGLE OVERCURRENT DEVICE PROTECTING CONDUCTORS IN THE RACEWAY PER ART 250.122(C).

DC CIRCUIT CALCULATIONS

Circuit #	Module	# mods per string	# strings	Imp	Isc	Voc	Vmp at STC	Temp Derate	Conduit Fill Derate	Max. 1 way length (ft)	%Vdrop
STR-01	Canadian Solar CS6X-310P	19	1	8.52	9.08	853.1	691.6	0.96	0.5	400	1.84%
CB-D1	Canadian Solar CS6X-315P	19	20	172.2	183.6	856.9	695.4	1	0.8	200	0.44%
CD-D2	Canadian Solar CS6X-315P	19	18	154.98	165.2	856.9	695.4	1	0.8	150	0.30%
CB-D3	Canadian Solar CS6X-315P	19	17	146.37	156.1	856.9	695.4	1	0.8	100	0.19%
CB-D4	Canadian Solar CS6X-315P	19	19	163.59	174.4	856.9	695.4	1	0.8	50	0.10%
CB-D5	Canadian Solar CS6X-315P	19	20	172.2	183.6	856.9	695.4	1	0.8	100	0.22%
CB-E1	Canadian Solar CS6X-315P	19	24	206.64	220.3	856.9	695.4	1	0.8	400	1.05%
CB-E2	Canadian Solar CS6X-315P	19	24	206.64	220.3	856.9	695.4	1	0.8	350	0.92%
CB-E3	Canadian Solar CS6X-315P	19	24	206.64	220.3	856.9	695.4	1	0.8	300	0.44%
CB-E4	Canadian Solar CS6X-315P	19	22	189.42	202	856.9	695.4	1	0.8	250	0.34%

DC CIRCUIT SCHEDULE

Circuit #	Conductor Metal	# of Conduits	# CC Conductors	Conductor Size	EGC Size	Max. 1 way length (ft)	Wire Insul.	Min EMT Size (in)	Min PVC Size (in)	Min RMC Size (in)
STR-01	Cu	1	1	AWG 12	AWG 10	400	PVWire	-	-	-
CB-D1	Al	2	2	AWG 4/0	AWG 01	200	THWN2	2	2	2
CD-D2	Al	2	2	AWG 4/0	AWG 01	150	THWN2	2	2	2
CB-D3	Al	2	2	AWG 4/0	AWG 01	100	THWN2	2	2	2
CB-D4	Al	2	2	AWG 4/0	AWG 01	50	THWN2	2	2	2
CB-D5	Al	2	2	AWG 4/0	AWG 01	100	THWN2	2	2	2
CB-E1	Al	2	2	AWG 4/0	AWG 01	400	THWN2	2	2	2
CB-E2	Al	2	2	AWG 4/0	AWG 01	350	THWN2	2	2	2
CB-E3	Al	1	2	AWG 4/0	AWG 01	300	THWN2	3	3	3
CB-E4	Al	1	2	AWG 4/0	AWG 01	250	THWN2	3	3	3



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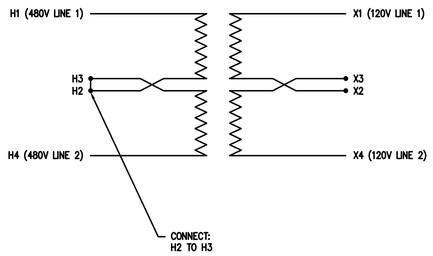
CONNECTICUT MUNICIPAL ELECTRIC ENERGY COOPERATIVE – GROTON
4052.32 KW GROUND MOUNT PV SYSTEM
Connecticut Municipal Electric Energy Cooperative – Groton
1280 Poquonnock Road
Groton, CT
860-889-4088

REVISIONS

REV	BY	DATE	COMMENTS

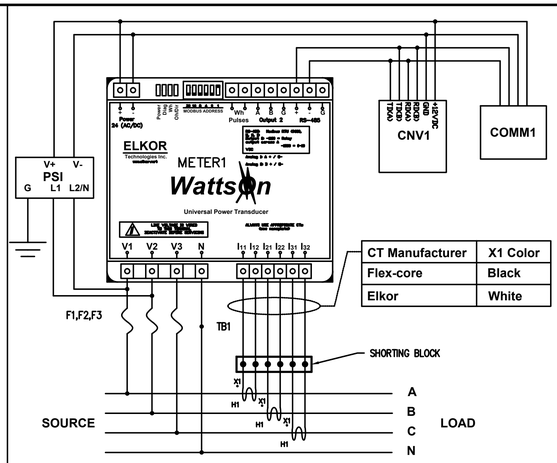
JOB DETAILS

AHJ: New London
MODULES: (13072) CANADIAN SOLAR # CS6X-310P
MOUNTING SYSTEM: RBI SOLAR GROUND MOUNT
INVERTER: Multiple Inverters
DESIGN: P KIRSCHNER
CHECKED BY: EZ
PROJECT MANAGER: COMM ROB MILLER
DATE: 8/24/15
PAYMENT TYPE: PPA
SHEET NAME: DC LINE DIAGRAM
JOB NUMBER: JB-0632046-00
SHEET: PV 13
REV: 0



C GATEWAY PWR XFMR WIRING DIAGRAM

NTS

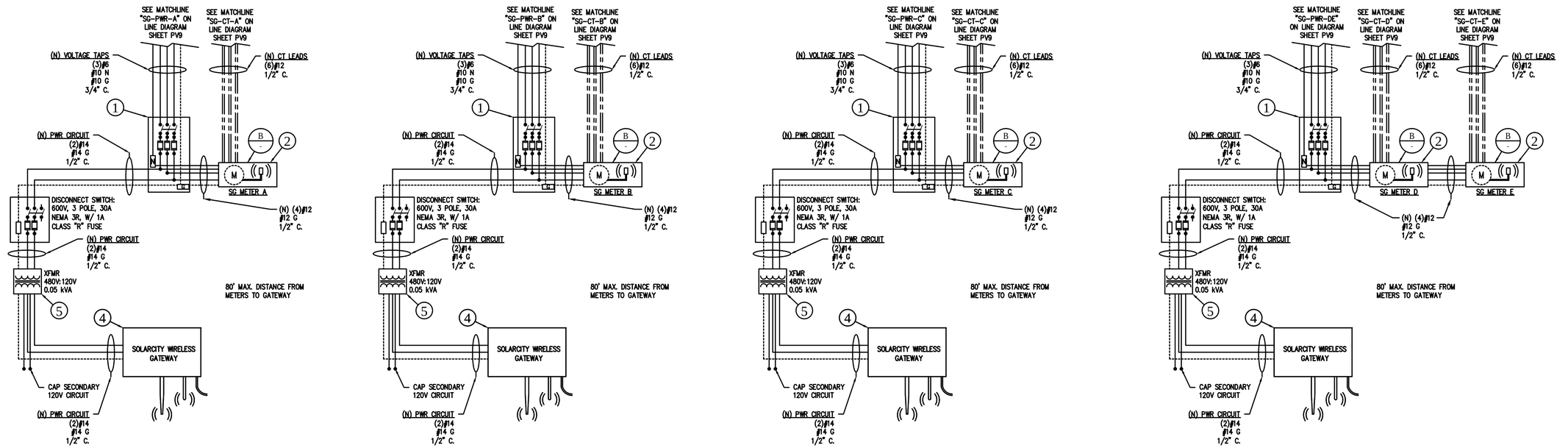


B SOLARGUARD/POWERGUIDE METER DIAGRAM

NTS

KEYED NOTES

1. (N) SOLARCITY MONITORING EQUIPMENT DISCONNECT; 600 VAC, 30A, 15A CLASS R FUSES
2. (N) SOLARCITY SOLARGUARD PV PRODUCTION kWH METER - REVENUE GRADE, CSI PBI COMPLIANT, UL LISTED.
3. NOT USED.
4. (N) SOLARCITY CELLULAR GATEWAY; LOCATED WITHIN 80' OF SG AND PG METERS.
5. (N) GATEWAY POWER TRANSFORMER, 480V PRI, 120V SEC, 0.05kVA, SINGLE PHASE, EATON #S20N11S81N OR EQUAL. SEE DETAIL C/- FOR WIRING DIAGRAM.



A PV SYSTEM MONITORING DIAGRAM

SOLAR MONITORING SYSTEM

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4052.32 52.32 KW GROUND MOUNT PV SYSTEM
Connecticut Municipal Electric Energy Cooperative – Groton
1280 Poquonnock Road
Groton, CT
860-889-4088

REVISIONS

REV	BY	DATE	COMMENTS

JOB DETAILS

AHJ: New London
MODULES: (13072) CANADIAN SOLAR # CS6X-310P
MOUNTING SYSTEM: RBI SOLAR GROUND MOUNT
INVERTER: Multiple Inverters
DESIGN: P KIRSCHNER
CHECKED BY: EZ
PROJECT MANAGER: ROB MILLER
WARRIES: COMM
DATE: 8/24/15
PAYMENT TYPE: PPA
SHEET NAME: MONITORING DETAILS
JOB NUMBER: JB-0632046-00
SHEET: PV 14
REV: 0

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NOT USED

20 NOT USED
901.901 WARNING LABEL DETAILS RK
Scale NTS

NOT USED

NOT USED

19 NOT USED
901.901 WARNING LABEL DETAILS RK
Scale NTS

NOT USED

NOT USED

18 NOT USED
901.901 WARNING LABEL DETAILS RK
Scale NTS

NOT USED

NOT USED

17 NOT USED
901.901 WARNING LABEL DETAILS RK
Scale NTS

NOT USED

NOT USED

16 NOT USED
901.901 WARNING LABEL DETAILS RK
Scale NTS

NOT USED

NOT USED

INVERTER A

NOTE:
1. INVERTER IDENTIFICATION LABEL
2. BLACK BACKGROUND
3. WHITE LETTERING
4. TEXT HEIGHT: 3/16" MIN.

9 INVERTER ID
901.901 WARNING LABEL DETAILS RK
Scale NTS

3"

WARNING
ELECTRIC SHOCK HAZARD
IF A GROUND FAULT IS INDICATED
NORMALLY GROUNDED
CONDUCTORS MAY BE
UNGROUNDED AND ENERGIZED

#LB-030004-10X

NOTE:
1. MARKING PER ART 690.5(C)
2. RED BACKGROUND
3. WHITE LETTERING
4. TEXT HEIGHT: 1/8" MIN.

8 INVERTER GROUND-FAULT WARNING
901.901 WARNING LABEL DETAILS RK
Scale NTS

NOTE:
1. MARKING PER ART 690.64(B)/705.12
2. RED BACKGROUND
3. WHITE LETTERING
4. TEXT HEIGHT: 1/8" MIN.

3"

WARNING
INVERTER OUTPUT
CONNECTION
DO NOT RELOCATE THIS
OVERCURRENT DEVICE

#LB-030039-10X

7 INVERTER AC CIRCUIT BREAKER
901.901 WARNING LABEL DETAILS RK
Scale NTS

NOT USED

8"

2"

SERVICE DISCONNECT

NOTE:
1. SERVICE DISCONNECT PLACARDS PER ART 230.2(E)
2. BLACK BACKGROUND
3. WHITE LETTERING
4. TEXT HEIGHT: 3/16"

12 SERVICE DISCONNECT PLACARDS
901.901 WARNING LABEL DETAILS RK
Scale NTS

NOT USED

NOT USED

NOT USED

NOT USED

3"

DC PHOTOVOLTAIC
DISCONNECT

#LB-050002-10X

MAXIMUM POWER
POINT CURRENT (Imp) A
MAXIMUM POWER
POINT VOLTAGE (Vmp) V
MAXIMUM SYSTEM
VOLTAGE (Voc) V
SHORT-CIRCUIT
CURRENT (Isc) A

#LB-030042-10X

WARNING
ELECTRIC SHOCK HAZARD
DO NOT TOUCH TERMINALS
TERMINALS ON BOTH LINE AND
LOAD SIDES MAY BE ENERGIZED
IN THE OPEN POSITION

#LB-030005-10X

NOTE:
1. MARKING PER ART 690.17, 690.53
2. RED BACKGROUND
3. WHITE LETTERING
4. TEXT HEIGHT: 1/8" MIN.

3 DC DISCONNECT
901.901 WARNING LABEL DETAILS RK
Scale NTS

3"

AC PHOTOVOLTAIC DISCONNECT

#LB-050006-10X

MAXIMUM AC
OPERATING CURRENT A
MAXIMUM AC
OPERATING VOLTAGE V

#LB-040007-10X

WARNING
ELECTRIC SHOCK HAZARD
DO NOT TOUCH TERMINALS
TERMINALS ON BOTH LINE AND
LOAD SIDES MAY BE ENERGIZED
IN THE OPEN POSITION

#LB-030005-10X

PV SYSTEM DISCONNECT
FOR UTILITY OPERATION

#LB-050013-10X

NOTE:
1. MARKING PER ART 690.14(C)(2), 690.17, 690.54
2. RED BACKGROUND
3. WHITE LETTERING
4. TEXT HEIGHT: 1/8" MIN.

2 PV SYSTEM UTILITY AC DISCONNECT
901.901 WARNING LABEL DETAILS RK
Scale NTS

3"

PHOTOVOLTAIC POWER SOURCE

#LB-020003-10X

MAXIMUM AC
OPERATING CURRENT A
MAXIMUM AC
OPERATING VOLTAGE V

#LB-040007-10X

WARNING
ELECTRIC SHOCK HAZARD
DO NOT TOUCH TERMINALS
TERMINALS ON BOTH LINE AND
LOAD SIDES MAY BE ENERGIZED
IN THE OPEN POSITION

#LB-030005-10X

NOTE:
1. MARKING PER ART 230.2(E), 690.17, 690.54
2. RED BACKGROUND
3. WHITE LETTERING
4. TEXT HEIGHT: 1/8" MIN.

1 POINT OF INTERCONNECTION
901.901 WARNING LABEL DETAILS RK
Scale NTS

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REVISIONS

REV	BY	DATE	COMMENTS

JOB DETAILS

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DRAWN: COMM
PROJECT MANAGER: ROB MILLER
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PAYMENT TYPE: PPA
SHEET NAME: WARNING LABELS
JOB NUMBER: JB-0632046-00
SHEET: PV 15
REV: 0

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EXHIBIT 6

ALL-POINTS
TECHNOLOGY CORPORATION

CARBON DEBT ANALYSIS

September 30, 2015

SolarCity Corporation
c/o Brightfields Development, LLC
40 Walnut Street, Suite 301
Wellesley, MA 02481

APT Project No.: CT443120

Re: Proposed 4.05 Megawatt Solar Facility
1240 Poquonnock Road
Groton, Connecticut

On behalf of SolarCity c/o Brightfields Development, LLC All-Points Technology Corporation, P.C. ("APT") performed an analysis to determine whether the proposed solar array installation ("Project") at the referenced site ("Subject Property") has the ability to produce a net improvement in carbon reduction compared to the loss of approximately 4.04 acres of forests/woodland. This analysis accounts for the loss of the trees and the carbon associated with both the manufacture of the solar panels and the installation activities.

The Project requires the removal of 101 trees primarily consisting of a larch plantation with some individual white pines. The results of this analysis demonstrate that the Project would begin to have a measurable net improvement in carbon reduction in less than three years. Consider the accounting of "carbon debt" in the following table - which includes the energy used and CO2 released during the manufacturing and installation of the solar arrays, as well as the existing and future carbon reduction derived from the trees to be displaced by the solar array[1] - and the subsequent payback analysis[2].

[1] The calculations used in determining amount of energy used and CO2e created in manufacture and installation of solar array uses industry standard data sourced from: The Environmental Protection Agency (EPA) CO2 emissions calculator; Franklin Life Cycle Analysis Database; NREL US Life Cycle Inventory; Aluminum Association Life Cycle Inventory; Ecoinvent Life Cycle Inventory; Annual Energy Review, EIA; DOE Life Cycle Inventory.

[2] Tree CO2E calcs are based off volumetric equations by McClure, J. and Cost, N. (2010) and the component ratio method by Health et al. 2009. This estimation method is adopted by US Forest Service Forest Inventory Analysis (FIA) program and California's pre-compliance market (AB 32), is peer-reviewed and widely considered to be the standard methodology for calculating carbon sequestration. USDA/Forestry Service/ Northern Research Station: "Measurement guidelines for the sequestration of forest carbon." Pearson, Timothy R.H. Brown, Sandra L. Birdsey, Richard A. 2007.

Brightfields Groton Solar Facility Debt Analysis Table[3]	
Carbon Debt & Payback of Solar Array	CO^2e (Metric Tons)
PV Modules	6187
Racking	381
Module Interconnection	7
Junction Boxes	16
Conduits and Fittings	82
Wire and Grounding Devices	141
Inverters and Transformers	223
Grid Connections	20
Office Facilities Concrete	33
Concrete	39
Trees Removed (Current Stock)	101
Trees (Future Lost Carbon Reduction - 20 Years)	234
Total CO^2e to Payback	7465
Annual PV Production Benefits (- CO^2e)	3269
Carbon Payback of Solar Array (Yrs)	**2.283**

System Size (W)	**4,052,320**
System Size (MW)	**4.05**
Acres Cleared (Estimated)	**4.04**

[3] Data and calculations provided by SolarCity on September 22, 2015.

John U. Faulise Jr. L.S.
James McNally, Jr., L.S.

David C. McKay, P.E.
Demian A. Sorrentino AICP, C.S.S.

CIVIL ENGINEERING LAND SURVEYING LAND USE PLANNING SOIL SCIENCE
BOUNDARIES

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www.boundariesllc.net

STORMWATER MANAGEMENT REPORT

PREPARED FOR:

SOLARCITY CORPORATION
DEVELOPMENT AND MANAGEMENT PLAN
GROTON RESERVOIR SOLAR PROJECT
1240 POQUONNOCK ROAD

GROTON, CONNECTICUT

OCTOBER 2015

PREPARED BY:

BOUNDARIES LLC

PROJECT I.D. NO. 15-2347

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Introduction

On behalf of SolarCity Corporation, Boundaries LLC has prepared the following stormwater management report for the proposed solar photovoltaic development to be located at 1240 Poquonnock Road in Groton, Connecticut. The proposed development consists of an approximately 4.1 MW DC solar photovoltaic development on open space adjacent to the Groton reservoir (three locations/mounting planes). This stormwater management report has been prepared to determine the potential for the proposed development to impact existing stormwater runoff patterns and flow rates. The proposed development makes use of low impact development techniques in order to limit the impacts to stormwater flow patterns and flow rates.

The new construction includes solar panels mounted on pole driven racking and electrical equipment installed on concrete pads. The mounting posts for the solar arrays will be pole driven approximately 8-feet into the ground. The existing gravel roadways and perimeter security fence will be utilized for this project thus minimizing land disturbance and construction impacts. The proposed project areas are shown on the Location Map included as Figure 1.

The primary purpose of this stormwater management report is to demonstrate how the proposed solar arrays may affect the existing runoff flow patterns. The proposed solar panel system is raised above grade by approximately 2-feet at its leading edge (lowest end). With the exception of selected areas to be cleared, and the installation of the pole driven supports and equipment pads, the proposed project area surfaces and terrain remain essentially unchanged. These low impact techniques will result in minimal impact on the runoff flow and flow patterns.

According to the Natural Resources Conservation Service (NRCS) Web Soil Survey the soils on the reservoir site are classified Haven and Enfield soils, 0 to 3% slopes. Haven and Enfield soils are classified as Hydrologic Soil Group B. The Soils Report is provided in Appendix A.

Existing and post-development conditions hydrographs were estimated using the hydrologic modeling program HydroCAD. The methodology selected was NRCS TR-20. Times of concentration were estimated using multiple segment flow paths as described in the NRCS TR-55 manual. The Type III 24-hour storm was analyzed under antecedent moisture condition two. HydroCAD modeling results are presented in Appendix B.

The regulated inland wetlands resource areas in the vicinity of the project were determined by Matthew Gustafson of All-Points Technology, a certified soil scientist. The wetland areas are primarily adjacent to the Groton Reservoir on the western side of the site and Smith Lake on the eastern side of the site. Two vernal pools were also identified in the wooded area east of Mounting Plane 2 and north of Mounting Plane 3. Buffer areas (defined by All-Points Technology) will be maintained between the proposed project areas and the wetland resource areas to minimize impacts to the regulated resources. For additional information regarding the locations of the regulated wetland resources within the project areas, please see Sheets 2 and 3 of the Proposed Site Development Plans included in Appendix C.

Existing Conditions

The proposed project area consists of approximately 13.5 acres of the 290.5-acre parcel that contains the Groton reservoir, water treatment plant, the existing Poquonnock Road electrical substation, transmission lines, and various parcels of open space. The property is zoned RS-20. The open space on the property consists of wooded areas and open fields mowed periodically by the Groton Utilities

Department. The property is adjacent to residential properties to the south and west, by Interstate 95 to the north, and by CT Route 117 and a church to the east. Existing conditions of the property are shown below.

Aerial Photograph of Project Area

During storm events, excess runoff flows overland from the Mounting Planes 1 and 2 to the Groton reservoir, or flows overland along the existing gravel road to the wooded areas to the east of the proposed solar arrays. Runoff from Mounting Plane 3 primarily flows overland to the adjacent properties owned by the City and Town of Groton to the south. A small portion of Mounting Plane 3 also flows overland to a wooded property to the east. Existing conditions sub-watersheds are shown on Figure 2. Existing conditions sub-watersheds were delineated using recent topographic survey data. Land uses were estimated based on site inspections, aerial photography and survey data.

Runoff Curve Numbers (CN) used for the existing conditions analysis are as follows: 61 (>75% grass cover) for the grassed areas in Hydrologic Soil Group B, 60 (woods with fair ground cover) for the wooded areas areas in Hydrologic Soil Group B, and 85 (gravel roads) for existing unpaved access drives and gravel/stone areas associated with the existing electrical utilities and substation.

The existing conditions sub-watersheds are described further below:

Drainage Area #1S (DA #1S)

This 5.1± acre drainage area encompasses the northern portion of Mounting Plane 1. The drainage area is comprised of dense grass and wooded areas. The weighted CN of the drainage area is 60. This area drains generally northwesterly via overland flow through the open field to the wooded area along the border of the Groton Reservoir. The drainage area is bounded by the reservoir to the north and west and the existing gravel access road and Smith Lake to the east.

Drainage Area #2S (DA #2S)

This 5.4± acre drainage area encompasses the southwestern portion of Mounting Plane 1 and the central and southern portions of Mounting Plane 2. The drainage area is comprised of dense grass with some isolated trees and a portion of the existing gravel access drive and electrical substation. The weighted CN of the drainage area is 62. This area drains generally westerly via overland flow through the open field to the reservoir. The drainage area is bounded by the reservoir to the west and the existing gravel access drive to the east.

Drainage Area #3S (DA #3S)

This 4.0± acre drainage area encompasses the southern portion of Mounting Plane 1and the northern portion of Mounting Plane 2. The drainage area is comprised of dense grass and a portion of the existing gravel access drive and electrical substation. The weighted CN of the drainage area is 64. This area drains generally southeasterly via overland flow along the existing transmission lines before entering the wooded area to the east.

Drainage Area #4S (DA #4S)

This 4.3± acre drainage area encompasses the majority of Mounting Plane 3. The drainage area is comprised of woods, some dense grass areas, and a portion of the existing gravel access drive and electrical substation. The weighted CN of the drainage area is 62. This area drains generally southerly via overland flow through the wooded areas before flowing off-site to the undeveloped properties to the south owned by the City and Town of Groton.

Drainage Area #5S (DA #5S)

This 0.4± acre drainage area encompasses the eastern portion of Mounting Plane 3. The drainage area is comprised of woods and some maintained grass areas. The weighted CN of the drainage area is 60. This area drains generally easterly via overland flow to the adjacent wooded property.

Existing conditions peak runoff rates were analyzed at the downgradient limits of the proposed development areas. The existing conditions peak runoff rates will be compared to the post-development peak runoff rates to determine the effect of the proposed development on existing stormwater runoff patterns. Existing conditions peak flow rates are summarized below in Tables 1 through 2. Detailed modeling results are included in Appendix B.

Table 1
Peak Runoff Rates – Mounting Planes 1 and 2 Existing Conditions

Storm Event	DA #1S (CFS)	DA #2S (CFS)	DA #3S (CFS)
2-Year	1.2	1.7	1.2
5-Year	2.8	3.5	2.3
10-Year	4.2	5.2	3.3
25-Year	5.8	7.0	4.4
50-Year	7.3	8.7	5.4
100-Year	9.4	11.0	6.8

Table 2
Peak Runoff Rates – Mounting Plane 3 Existing Conditions

Storm Event	DA #4S (CFS)	DA #5S (CFS)
2-Year	0.8	0.1
5-Year	1.7	0.2
10-Year	2.5	0.3
25-Year	3.4	0.4
50-Year	4.2	0.5
100-Year	5.3	0.7

Proposed Conditions

The proposed improvements to the site include the installation of solar panels mounted on steel posts driven into the ground and electrical equipment mounted on concrete pads. Additionally, approximately 3.9 acres of wooded areas will be cleared and seeded with grass to accommodate the solar arrays.

Installation of the solar arrays will consist of clearing the select wooded areas located within the project limits, seeding and mulching the disturbed areas, mowing the dense grass inside the proposed development areas, installing proposed metal racking posts, installing and anchoring the solar array panels to the racking system, and installing the necessary electrical equipment for harvesting power.

The stormwater analysis was conducted to determine if the proposed development would result in significant changes to existing flow patterns, water quality, or peak runoff rates. The design

incorporates measures for limiting disturbed areas and minimizing increases in new impervious area. Proposed impervious areas are limited to the steel posts for the proposed racking system, and the proposed electrical equipment pads. The existing gravel access drives will be utilized for access to the project area.

The W8X10 steel posts each cover 2.96 square inches (0.02 square feet) and they are spaced approximately 16 feet along each row of solar arrays. The proposed concrete equipment pads are approximately 20 feet by 20 feet and cover approximately 400 square feet each. The changes in impervious areas and CN values for each drainage area as a result of the proposed development are presented below in Table 3 – Impervious Area Summary. The increases in CN values are primarily due to the clearing required to install the proposed solar arrays.

Table 3
Impervious Area Summary

Drainage Area	Proposed Racking System (SF)	Proposed Concrete Pads (SF)	Total Proposed Impervious Area (SF)	Total Watershed Area (SF)	CN (Pre)	CN (Post)
DA #1S	8	0	8	221,024	60	61
DA #2S	4	800	804	235,573	62	62
DA #3S	4	800	804	174,284	64	64
MP-1/2 Total	**16**	**1,600**	**1,616**	**630,881**	**62**	**62**
DA #4S	7	400	407	187,084	62	63
DA #5S	1	0	1	18,251	60	61
MP-3 Total	**8**	**400**	**408**	**205,335**	**62**	**63**

Proposed conditions sub-watersheds are shown on Figure 3. Proposed conditions sub-watersheds were delineated using topographic survey data. Land uses were estimated based on site inspections and by using the proposed site development plan.

Runoff Curve Numbers (CN) used for the proposed conditions analysis are as follows: 61 (>75% grass cover) for the grassed areas (solar array areas) in Hydrologic Soil Group B, 60 (woods with fair ground cover) for wooded areas in Hydrologic Soil Group B, 85 (gravel roads) for existing unpaved access drives and gravel/stone areas associated with the existing electrical utilities and substation, and 98 (impervious) for solar array posts and concrete equipment pads.

The proposed improvements to the existing conditions sub-watersheds are described further below:

Drainage Area #1S (DA #1S)

Approximately 1.8 acres of the existing wooded area (2.6 acres in total) will be cleared, seeded with grass, and mulched prior to construction. The remaining area will be mowed prior to construction. The proposed improvements to this drainage area include the installation of approximately 372 posts (8 square feet) for the proposed racking system. The posts are spaced at approximately 16 feet along the proposed solar arrays and will support the solar modules. The weighted CN of the drainage area is 61. This area drains generally northwesterly via overland flow through the open field to the remaining wooded area along the border of the Groton Reservoir. There is a decrease in the time of concentration travel time in comparison to existing conditions due to the clearing required for installation of the solar modules in this area. The result of the shorter travel time is an increase in peak runoff rates. In order to dissipate the concentrated flow of runoff and reduce the flow velocities,

a crushed stone check dam/berm will be constructed along the downgradient edge of the solar array area in the areas to be cleared. The check dam results in a longer time of concentration travel time and reduces the peak runoff rates from the cleared areas. The drainage area is bounded by the reservoir to the north and west and the existing gravel access road and Smith Lake to the east. The existing runoff flow paths will not be affected by the proposed development as there is no proposed grading of the site. The proposed stone check dam will result in the reduction in peak runoff rates.

Drainage Area #2S (DA #2S)

In Drainage Area #2S, individual trees will be cleared and the minor disturbed areas will be seeded and mulched prior to construction. The grassed area will be mowed prior to construction. The proposed improvements to this drainage area include the installation of approximately 167 posts (4 square feet) for the proposed racking system. The posts are spaced at approximately 16 feet along the proposed solar arrays and will support the solar modules. Two 20 foot by 20 foot concrete equipment pads will also be constructed in this area. The weighted CN of the drainage area is 62. This area drains generally westerly via overland flow through the open field to the reservoir. The drainage area is bounded by the reservoir to the west and the existing gravel access drive to the east. The existing runoff flow paths will not be affected by the proposed development given there is no proposed grading of the site.

Drainage Area #3S (DA #3S)

In Drainage Area #3S, individual trees will be cleared and the minor disturbed areas will be seeded and mulched prior to construction. The grassed area will be mowed prior to construction. The proposed improvements to this drainage area include the installation of approximately 211 posts (4 square feet) for the proposed racking system. The posts are spaced at approximately 16 feet along the proposed solar arrays and will support the solar modules. Two 20 foot by 20 foot concrete equipment pads will also be constructed in this area. The weighted CN of the drainage area is 64. This area drains generally southeasterly via overland flow along the existing transmission lines before entering the existing wooded area to the east. The existing runoff flow paths will not be affected by the proposed development given there is no proposed grading of the site.

Drainage Area #4S (DA #4S)

Approximately 1.9 acres of the existing wooded area (2.2 acres in total) will be cleared, seeded with grass, and mulched prior to construction. The remaining area will be mowed prior to construction. The proposed improvements to this drainage area include the installation of approximately 331 posts (7 square feet) for the proposed racking system. The posts are spaced at approximately 16 feet along the proposed solar arrays and will support the solar modules and wiring. One 20 foot by 20 foot concrete equipment pad will also be constructed in this area. The weighted CN of the drainage area is 63. This area drains generally southerly via overland flow through the proposed solar array areas before flowing off-site to the undeveloped properties to the south owned by the City and Town of Groton. There is a decrease in the time of concentration travel time in comparison to existing conditions due to the clearing required for installation of the solar modules in this area. The result of the shorter travel time is an increase in peak runoff rates. In order to dissipate the concentrated flow of runoff and reduce the flow velocities, a crushed stone check dam/berm will be constructed along the downgradient edge of the solar array area in the areas to be cleared. The check dam results in a longer time of concentration travel time and reduces the peak runoff rates from the cleared areas. The existing runoff flow paths will not be affected by the proposed development as there is no proposed grading of the site. The proposed stone check dam will result in the reduction in peak runoff rates.

Drainage Area #5S (DA #5S)

The approximately 0.2 acres of woods in the area will be cleared, seeded with grass, and mulched prior to construction. The remaining area will be mowed prior to construction. The proposed improvements to this drainage area include the installation of approximately 36 posts (1 square foot) for the proposed racking system. The posts are spaced at approximately 16 feet along the proposed solar arrays and will support the solar modules. The weighted CN of the drainage area is 61. This area drains generally easterly via overland flow to the adjacent wooded property. The existing runoff flow paths will not be affected by the proposed development as there is no proposed grading of the site.

Proposed conditions peak flow rates were analyzed at the down-gradient limit of the proposed development areas as there are no existing stormwater management systems in place on these sites and runoff flows overland. The change in peak runoff rates as a result of the proposed improvements are summarized below in Tables 4 and 5. Detailed modeling results are included in Appendix B.

Table 4
Peak Runoff Rates – Mounting Planes 1 and 2 Post-Development vs. Pre-Development

	DA #1S			DA #2S			DA #3S		
Storm Event	Post (CFS)	Pre (CFS)	Change (CFS)	Post (CFS)	Pre (CFS)	Change (CFS)	Post (CFS)	Pre (CFS)	Change (CFS)
2-Year	1.2	1.2	+0.0	1.7	1.7	+0.0	1.2	1.2	+0.0
5-Year	2.7	2.8	-0.1	3.5	3.5	+0.0	2.3	2.3	+0.0
10-Year	4.0	4.2	-0.2	5.2	5.2	+0.0	3.3	3.3	+0.0
25-Year	5.5	5.8	-0.3	7.0	7.0	+0.0	4.4	4.4	+0.0
50-Year	6.9	7.3	-0.4	8.7	8.7	+0.0	5.4	5.4	+0.0
100-Year	8.8	9.4	-0.6	11.0	11.0	+0.0	6.8	6.8	+0.0

Table 5
Peak Runoff Rates –Mounting Plane 3 Post-Development vs. Pre-Development

	DA #4S			DA #5S		
Storm Event	Post (CFS)	Pre (CFS)	Change (CFS)	Post (CFS)	Pre (CFS)	Change (CFS)
2-Year	0.8	0.8	+0.0	0.1	0.1	+0.0
5-Year	1.6	1.7	-0.1	0.2	0.2	+0.0
10-Year	2.4	2.5	-0.1	0.3	0.3	+0.0
25-Year	3.2	3.4	-0.2	0.5	0.4	+0.1
50-Year	4.0	4.2	-0.2	0.6	0.5	+0.1
100-Year	5.0	5.3	-0.3	0.7	0.7	+0.0

Due to the minimal impervious area increase associated with the proposed post mounted solar arrays there is a very limited impact on the post-development CN values. The peak flow rates are impacted more by the reduced times of concentrations and the limited clearing associated with the project than as a result in the minimal increases in impervious areas. To mitigate the effects of the change in surface conditions, crushed stone check dams are proposed in the areas to be cleared in order to dissipate the concentrated runoff flow and increase the travel times, resulting in an attenuation of

peak runoff rates. As presented above, the proposed low impact development has extremely limited effects on peak runoff rates.

Runoff from DA #5S increases slightly as a result of the proposed development, as presented above in Table 5. Runoff from this drainage area currently flows overland to an adjacent wooded buffer along an existing parking lot. Due to the wooded cover in the area of off-site overland flow and the lack of an existing stormwater management system point discharge, and current conditions being maintained and essentially unchanged, it is believed that the minimal increases in peak flow rates should not negatively impact down gradient areas. Additionally, the decreases in peak runoff rates from DA #4S result in a net decrease in peak runoff rates from the Mounting Plane 3 development area when viewed as a whole.

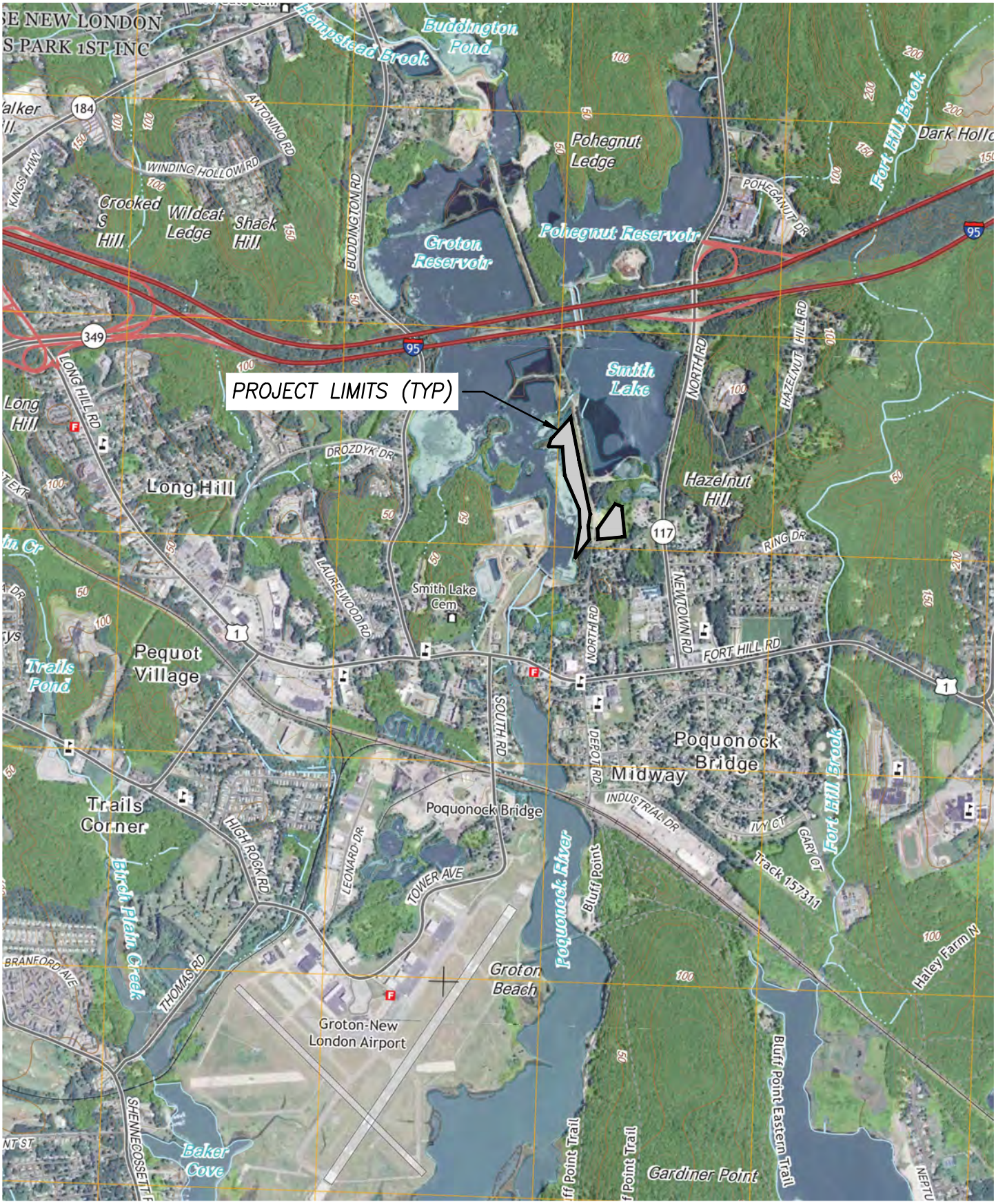
The stormwater management system is also required to treat the runoff from the proposed impervious areas. The proposed crushed stone check dam will be embedded into the existing grade to provide the storage capacity to meet the requirements for both the water quality volume for pollutant reduction as well as groundwater recharge. The volume calculations for the proposed check dams are included in Appendix B. Approximately 482 cubic feet of storage is provided. The required groundwater recharge volume and water quality volume is 397 cubic feet. Because the storage provided exceeds the required volumes the embedment of the check dam is sufficient to offset the minimal increases in impervious area associated with the project.

Summary

As discussed above the proposed development has been expressly designed to limit the impacts to existing stormwater runoff flow rates and patterns. The existing runoff flow paths will be maintained and while there are minor modeled increases in some peak runoff rates from the existing sites, we are confident that they should not have a negative impact on down gradient areas.

The proposed improvements are shown on plans titled “Poquonnock Road Solar Project, Development and Management Plan, Prepared for SolarCity Corporation, 1240 Poquonnock Road, Groton, Connecticut, September 2015, Job I.D. No. 15-2347, Cover Sheet through Sheet 10 of 10” prepared by Boundaries LLC.

Figures



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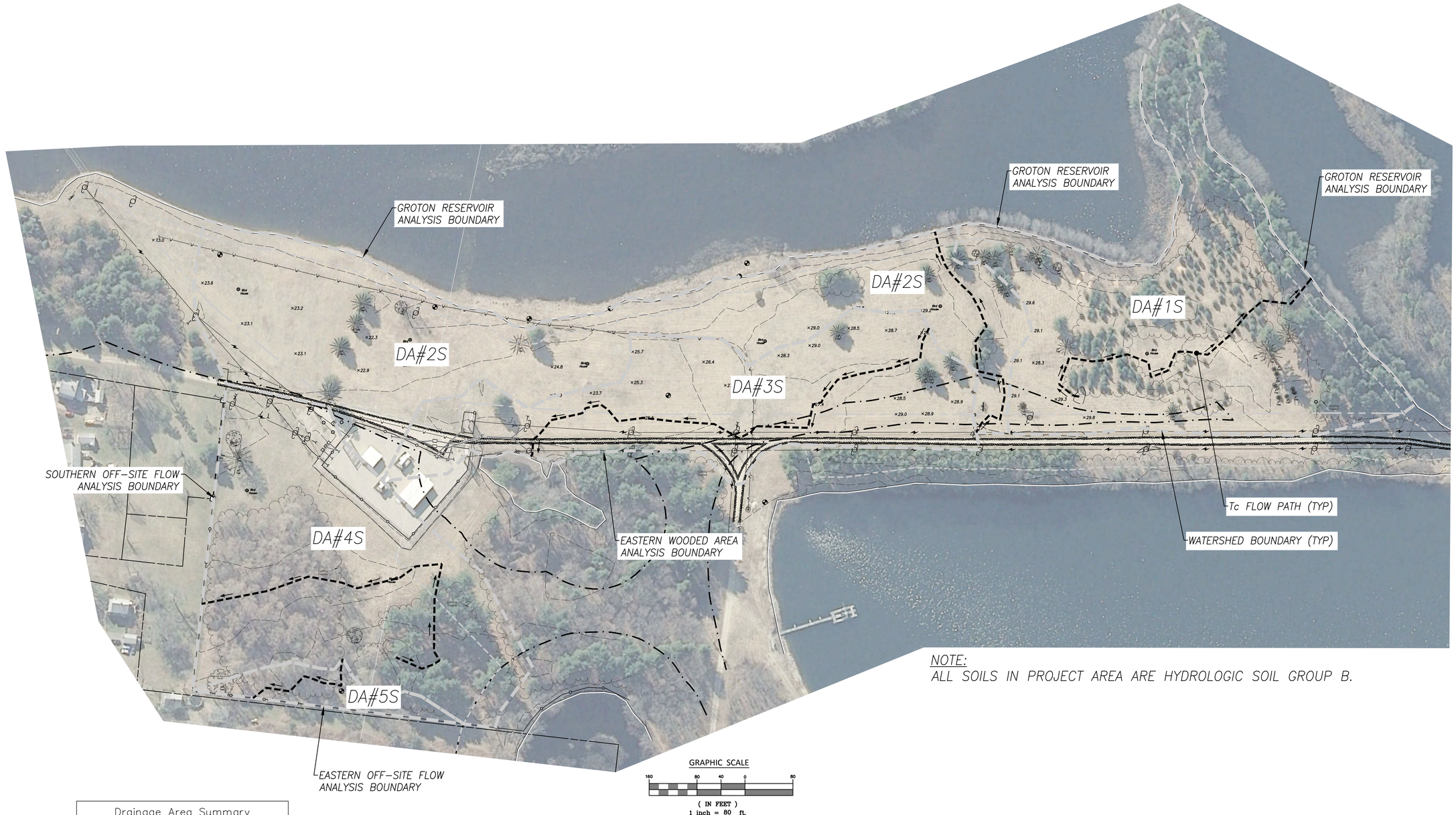
Location Map
(New London Quad)
SolarCity Corporation
1240 Poquonnock Road, Groton, CT

SCALE:	1"=2,000'
DATE:	September 2015
JOB NO.	15-2347
FIGURE	1



GRAPHIC SCALE

160 80 40 0 80

(IN FEET)
1 inch = 80 ft.

Drainage Area Summary			
NAME	AREA (Acres)	Weighted CN Value	Tc Time (Minutes)
DA #1S	5.07	60	25.2
DA #2S	5.41	62	24.6
DA #3S	4.00	64	42.6
AREA 1 TOTAL	14.48	62	--
DA #4S	4.30	62	64.9
DA #5S	0.42	60	34.7
AREA 2 TOTAL	4.72	62	--

NOTE:
ALL SOILS IN PROJECT AREA ARE HYDROLOGIC SOIL GROUP B.

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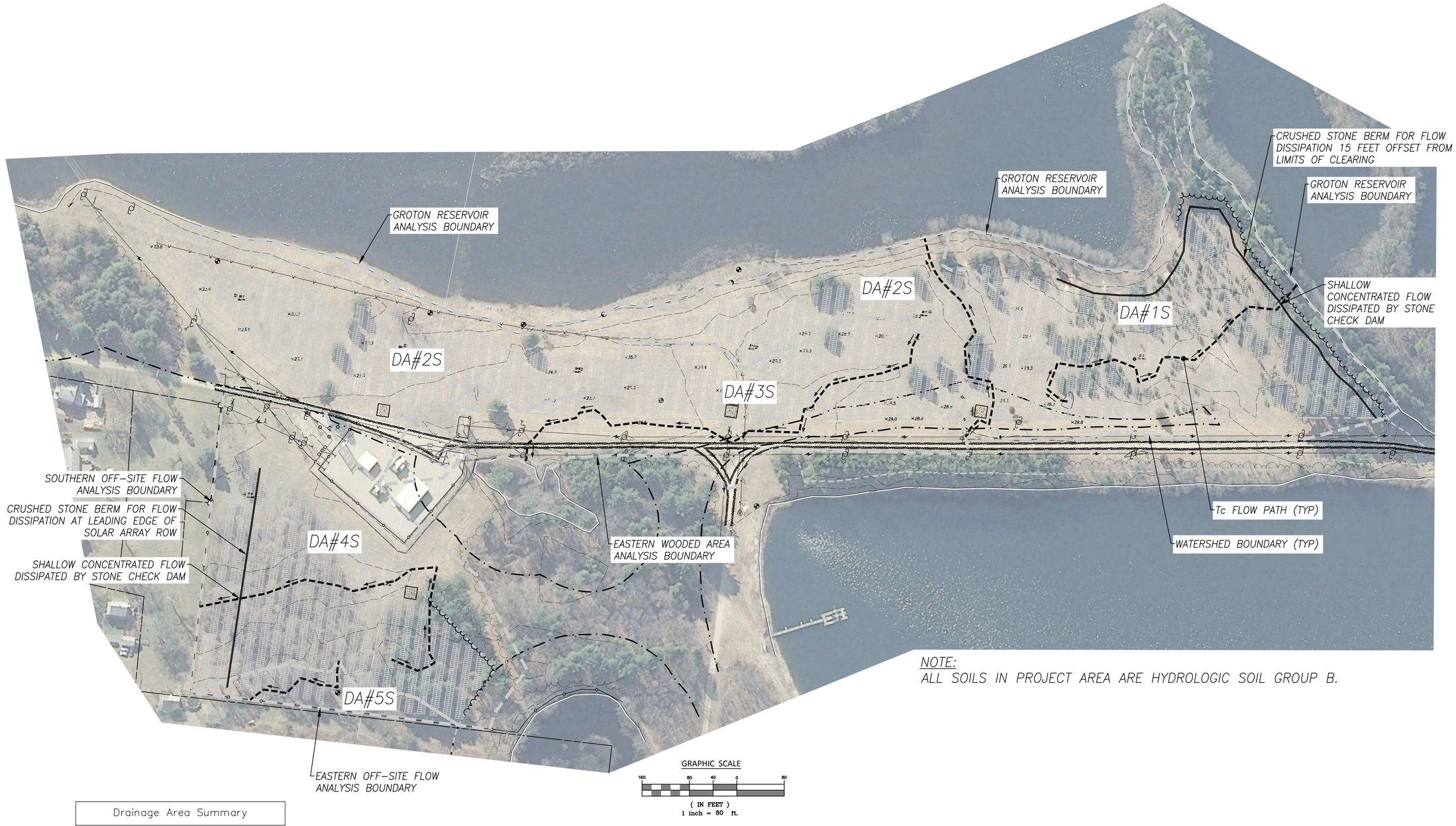
Figure 2
"Pre-Development Conditions Watershed Map"
SolarCity Corporation
1240 Poquonnock Road, Groton, Connecticut

SCALE: 1"=80'
DATE: September 2015
JOB I.D. NO. 15-2347
Revisions

SHEET NO.
1
2



GRAPHIC SCALE

160 80 40 0 80

(IN FEET)

1 inch = 80 ft.

NOTE:

ALL SOILS IN PROJECT AREA ARE HYDROLOGIC SOIL GROUP B.

Drainage Area Summary

NAME	AREA (Acres)	Weighted CN Value	Tc Time (Minutes)
DA #1S	5.07	61	32.4
DA #2S	5.41	62	24.6
DA #3S	4.00	64	42.6
AREA 1 TOTAL	14.48	62	--
DA #4S	4.30	63	75.0
DA #5S	0.42	61	30.4
AREA 2 TOTAL	4.72	63	--

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Figure 3
"Post-Development Conditions Watershed Map"
SolarCity Corporation
1240 Poquonnock Road, Groton, Connecticut

SCALE: 1"=80'

DATE: September 2015

JOB I.D. NO. 15-2347

Revisions

SHEET NO.

2

2

Appendix A
NRCS Web Soil Survey Soils Report

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for State of Connecticut

August 12, 2015

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Map Scale: 1:4,310 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

Feet
0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: State of Connecticut
Survey Area Data: Version 13, Oct 28, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 28, 2011—May 12, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

State of Connecticut (CT600)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
32A	Haven and Enfield soils, 0 to 3 percent slopes	25.8	91.2%
306	Udorthents-Urban land complex	0.1	0.5%
W	Water	2.4	8.3%
Totals for Area of Interest		**28.3**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If

intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

State of Connecticut

32A—Haven and Enfield soils, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 9lmr
Elevation: 0 to 1,200 feet
Mean annual precipitation: 43 to 54 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 140 to 185 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Haven and similar soils: 60 percent
Enfield and similar soils: 25 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Haven

Setting

Landform: Outwash plains, terraces
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Coarse-loamy eolian deposits over sandy and gravelly glaciofluvial deposits derived from granite and/or schist and/or gneiss

Typical profile

Ap - 0 to 7 inches: silt loam
Bw1 - 7 to 14 inches: silt loam
Bw2 - 14 to 20 inches: silt loam
BC - 20 to 24 inches: fine sandy loam
2C - 24 to 60 inches: stratified very gravelly sand to gravelly fine sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 1
Hydrologic Soil Group: B

Description of Enfield

Setting

Landform: Outwash plains, terraces
Down-slope shape: Convex

Across-slope shape: Linear
Parent material: Coarse-silty eolian deposits over sandy and gravelly glaciofluvial deposits derived from granite and/or schist and/or gneiss

Typical profile

O - 0 to 3 inches: slightly decomposed plant material
O - 3 to 4 inches: moderately decomposed plant material
Ap - 4 to 12 inches: silt loam
Bw1 - 12 to 20 inches: silt loam
Bw2 - 20 to 26 inches: silt loam
Bw3 - 26 to 30 inches: silt loam
2C - 30 to 37 inches: stratified coarse sand to very gravelly loamy sand
3C - 37 to 65 inches: stratified very gravelly coarse sand to loamy sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 6.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 1
Hydrologic Soil Group: B

Minor Components

Agawam

Percent of map unit: 4 percent
Landform: Outwash plains, terraces
Down-slope shape: Linear
Across-slope shape: Linear

Branford

Percent of map unit: 3 percent
Landform: Outwash plains, terraces
Down-slope shape: Linear
Across-slope shape: Linear

Raypol

Percent of map unit: 2 percent
Landform: Depressions, drainageways
Down-slope shape: Concave
Across-slope shape: Concave

Ninigret

Percent of map unit: 2 percent
Landform: Outwash plains, terraces
Down-slope shape: Linear
Across-slope shape: Concave

Unnamed, gravelly surface
Percent of map unit: 2 percent

Tisbury
Percent of map unit: 2 percent
Landform: Outwash plains, terraces
Down-slope shape: Concave
Across-slope shape: Linear

306—Udorthents-Urban land complex

Map Unit Setting
National map unit symbol: 9lmg
Elevation: 0 to 2,000 feet
Mean annual precipitation: 43 to 56 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 120 to 185 days
Farmland classification: Not prime farmland

Map Unit Composition
Udorthents and similar soils: 50 percent
Urban land: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents

Setting
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Drift

Typical profile
A - 0 to 5 inches: loam
C1 - 5 to 21 inches: gravelly loam
C2 - 21 to 80 inches: very gravelly sandy loam

Properties and qualities
Slope: 0 to 25 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 1.98 in/hr)
Depth to water table: About 54 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 6.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B

Description of Urban Land

Typical profile

H - 0 to 6 inches: material

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D

Minor Components

Unnamed, undisturbed soils

Percent of map unit: 8 percent

Udorthents, wet substratum

Percent of map unit: 5 percent
Down-slope shape: Convex
Across-slope shape: Linear

Rock outcrop

Percent of map unit: 2 percent

W—Water

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Lines

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Points

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: State of Connecticut
Survey Area Data: Version 13, Oct 28, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 28, 2011—May 12, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — State of Connecticut (CT600)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
32A	Haven and Enfield soils, 0 to 3 percent slopes	B	25.8	91.2%
306	Udorthents-Urban land complex	B	0.1	0.5%
W	Water		2.4	8.3%
Totals for Area of Interest			**28.3**	**100.0%**

Rating Options—Hydrologic Soil Group

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

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Appendix B
HydroCAD Modeling Results

Groundwater Recharge Volume

GRV = (D)(A)(I)/12

GRV = Groundwater Recharge Volume (acre-feet)

D = Depth of Runoff to be Recharged (inches)

A = Site Area (acres)

I = Post-Development Imperviousness (decimal)

D=	0.25	inches	(HSG B from Table 7-4, Stormwater Quality Manual)
A =	13.50	acres	
IA=	0.05	acres	
I =	0.0034		
GRV =	0.0010	acre-feet	
=	**42.17**	**cubic feet**	

Water Quality Volume

WQV = (1")(R)(A)/12

WQV = Water Quality Volume (acre-feet)

R = Runoff Co-Efficient = 0.005 + 0.009(I)

I = Impervious Area (%)

A = Site Area (acres)

IA=	0.05	acres
I =	0.34	%
R =	0.01	
A =	13.50	
WQV =	0.0091	acre-feet
=	**396.83**	**cubic feet**

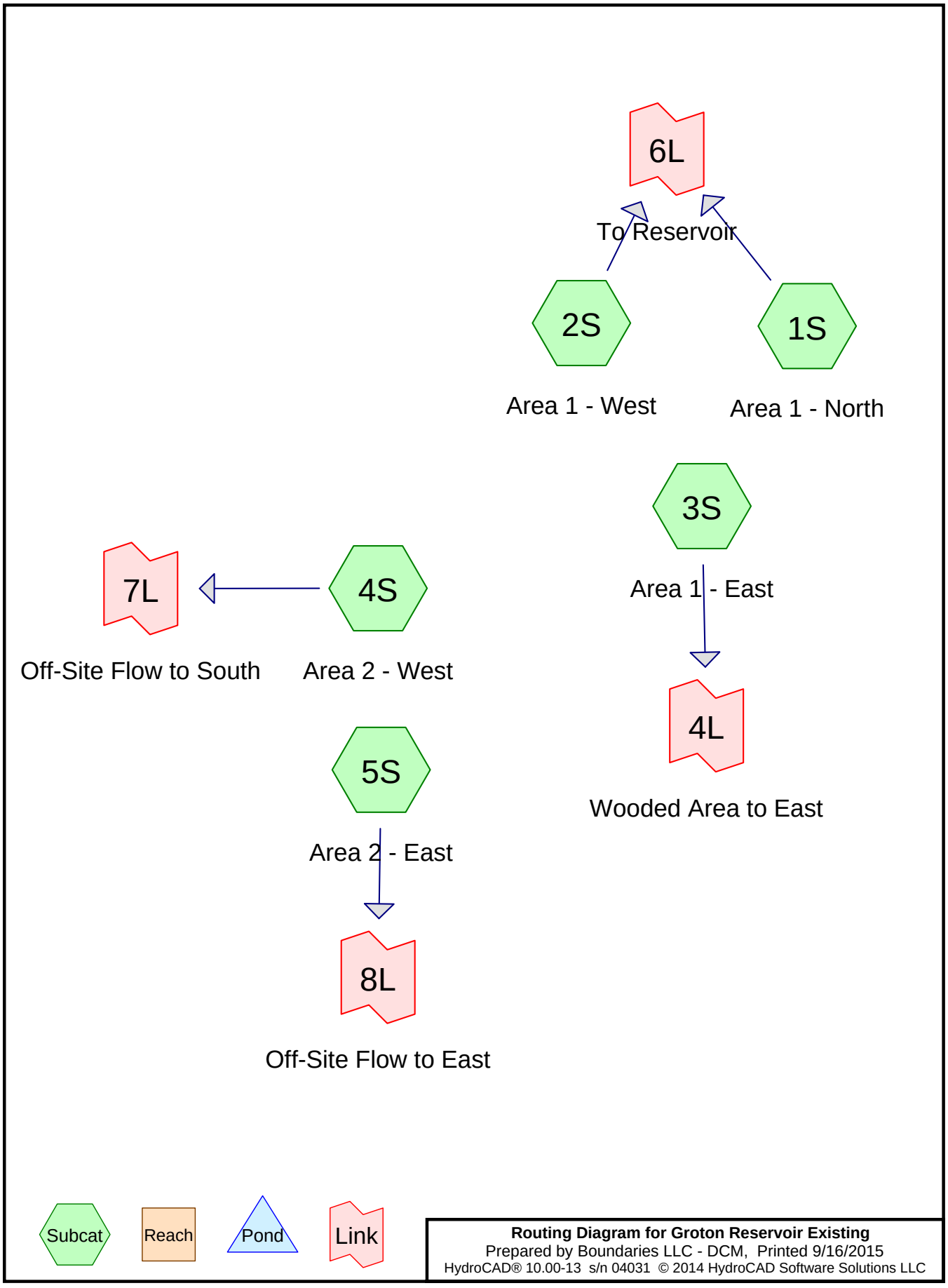
Required Treatment Volume

Embedment of crushed stone check dam is sized to treat both the GRV and the WQV.
WQV requirements are reduced by the amount of GRV provided.
Required treatment volume = (WQV - GRV) + GRV

Volume Required	**396.83**	**cubic feet**
Length of Check Dam	**1,205.00**	**feet**
Width of Check Dam	**2.00**	**feet**
Embedment of Check Dam	**0.50**	**feet**
Porosity of Crushed Stone	**0.40**	
Volume Provided	**482.00**	**cubic feet**

Because volume provided exceeds volume required the design meets the requirements of the Stormwater Quality Manual.

Existing Conditions Results



Routing Diagram for Groton Reservoir Existing
Prepared by Boundaries LLC - DCM, Printed 9/16/2015

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
13.174	61	>75% Grass cover, Good, HSG B (1S, 2S, 3S, 4S, 5S)
0.988	85	Gravel roads, HSG B (2S, 3S, 4S)
5.035	60	Woods, Fair, HSG B (1S, 2S, 4S, 5S)
19.197	**62**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
19.197	HSG B	1S, 2S, 3S, 4S, 5S
0.000	HSG C	
0.000	HSG D	
0.000	Other	
19.197		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	13.174	0.000	0.000	0.000	13.174	>75% Grass cover, Good	1S, 2S, 3S, 4S, 5S
0.000	0.988	0.000	0.000	0.000	0.988	Gravel roads	2S, 3S, 4S
0.000	5.035	0.000	0.000	0.000	5.035	Woods, Fair	1S, 2S, 4S, 5S
0.000	**19.197**	**0.000**	**0.000**	**0.000**	**19.197**	**TOTAL AREA**	

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Area 1 - North Runoff Area=5.074 ac 0.00% Impervious Runoff Depth>0.48"
Flow Length=596' Tc=25.2 min CN=60 Runoff=1.2 cfs 0.205 af

Subcatchment 2S: Area 1 - West Runoff Area=5.408 ac 0.00% Impervious Runoff Depth>0.56"
Flow Length=437' Tc=24.6 min CN=62 Runoff=1.7 cfs 0.254 af

Subcatchment 3S: Area 1 - East Runoff Area=4.001 ac 0.00% Impervious Runoff Depth>0.65"
Flow Length=831' Tc=42.6 min CN=64 Runoff=1.2 cfs 0.215 af

Subcatchment 4S: Area 2 - West Runoff Area=4.295 ac 0.00% Impervious Runoff Depth>0.56"
Flow Length=662' Tc=64.9 min CN=62 Runoff=0.8 cfs 0.199 af

Subcatchment 5S: Area 2 - East Runoff Area=0.419 ac 0.00% Impervious Runoff Depth>0.48"
Flow Length=214' Tc=34.7 min CN=60 Runoff=0.1 cfs 0.017 af

Link 4L: Wooded Area to East Inflow=1.2 cfs 0.215 af
Primary=1.2 cfs 0.215 af

Link 6L: To Reservoir Inflow=2.9 cfs 0.459 af
Primary=2.9 cfs 0.459 af

Link 7L: Off-Site Flow to South Inflow=0.8 cfs 0.199 af
Primary=0.8 cfs 0.199 af

Link 8L: Off-Site Flow to East Inflow=0.1 cfs 0.017 af
Primary=0.1 cfs 0.017 af

Total Runoff Area = 19.197 ac Runoff Volume = 0.890 af Average Runoff Depth = 0.56"
100.00% Pervious = 19.197 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1S: Area 1 - North

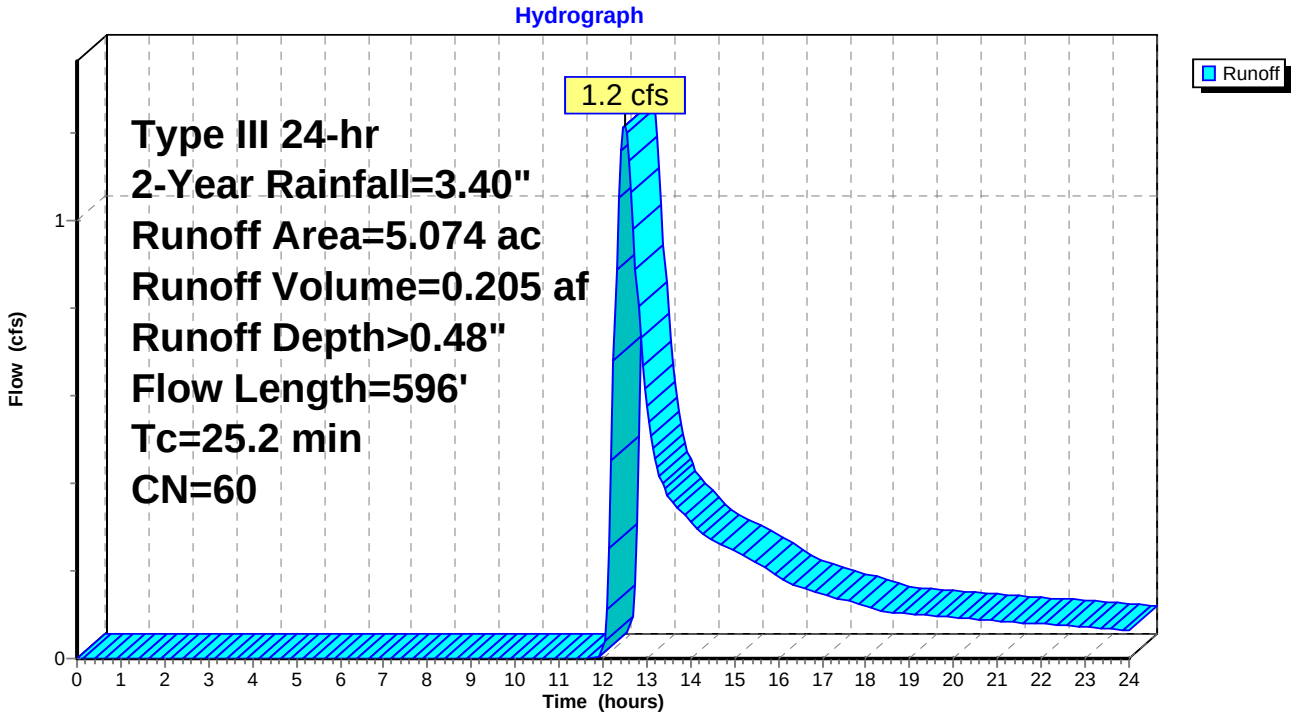
Runoff = 1.2 cfs @ 12.48 hrs, Volume= 0.205 af, Depth> 0.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.40"

Area (ac)	CN	Description
2.589	60	Woods, Fair, HSG B
2.485	61	>75% Grass cover, Good, HSG B
5.074	60	Weighted Average
5.074		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.5	100	0.0177	0.11		**Sheet Flow, Grass and Trees** Grass: Dense n= 0.240 P2= 3.40"
1.0	40	0.0085	0.65		**Shallow Concentrated Flow, Grass and Trees** Short Grass Pasture Kv= 7.0 fps
0.3	32	0.0625	1.75		**Shallow Concentrated Flow, Grass and Trees** Short Grass Pasture Kv= 7.0 fps
2.9	143	0.0140	0.83		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
5.2	211	0.0095	0.68		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
1.3	70	0.0323	0.90		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
25.2	596	Total			

Subcatchment 1S: Area 1 - North



Summary for Subcatchment 2S: Area 1 - West

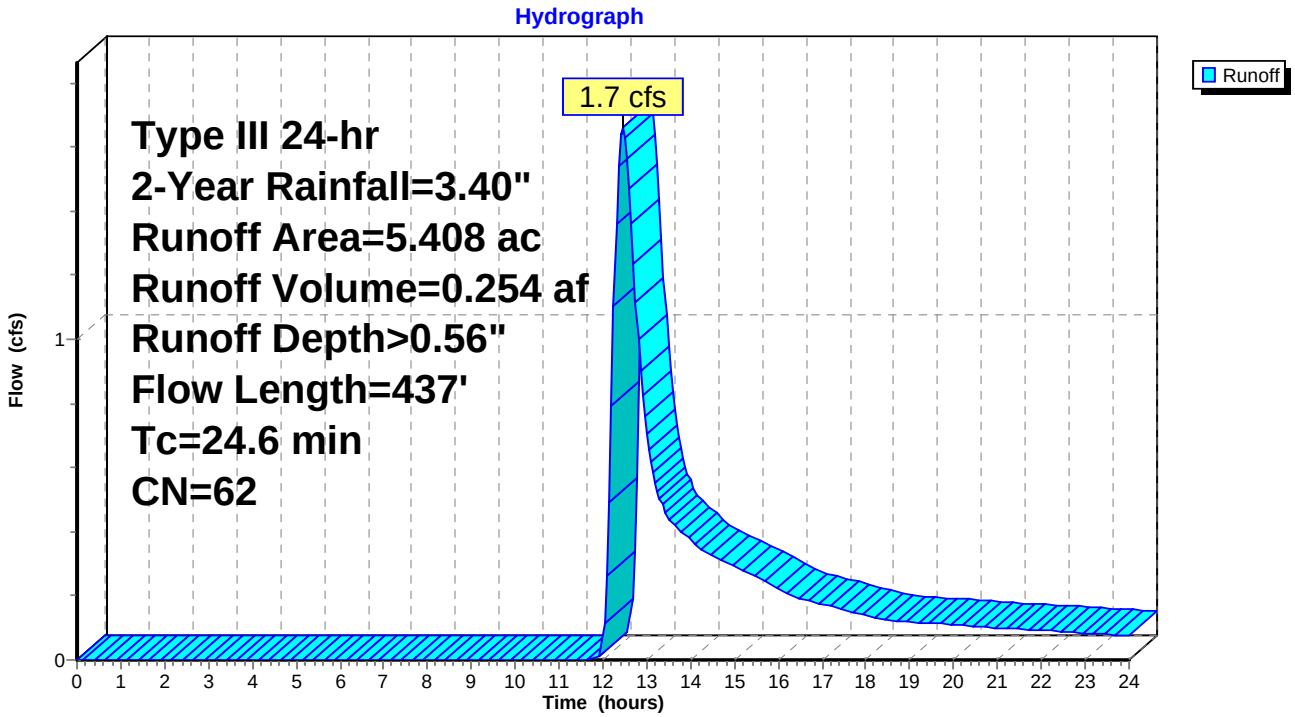
Runoff = 1.7 cfs @ 12.45 hrs, Volume= 0.254 af, Depth> 0.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.40"

Area (ac)	CN	Description
5.144	61	>75% Grass cover, Good, HSG B
0.068	60	Woods, Fair, HSG B
0.196	85	Gravel roads, HSG B
5.408	62	Weighted Average
5.408		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.0	100	0.0120	0.10		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.40"
7.5	312	0.0099	0.70		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
0.1	25	0.1581	2.78		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
24.6	437	Total			

Subcatchment 2S: Area 1 - West



Summary for Subcatchment 3S: Area 1 - East

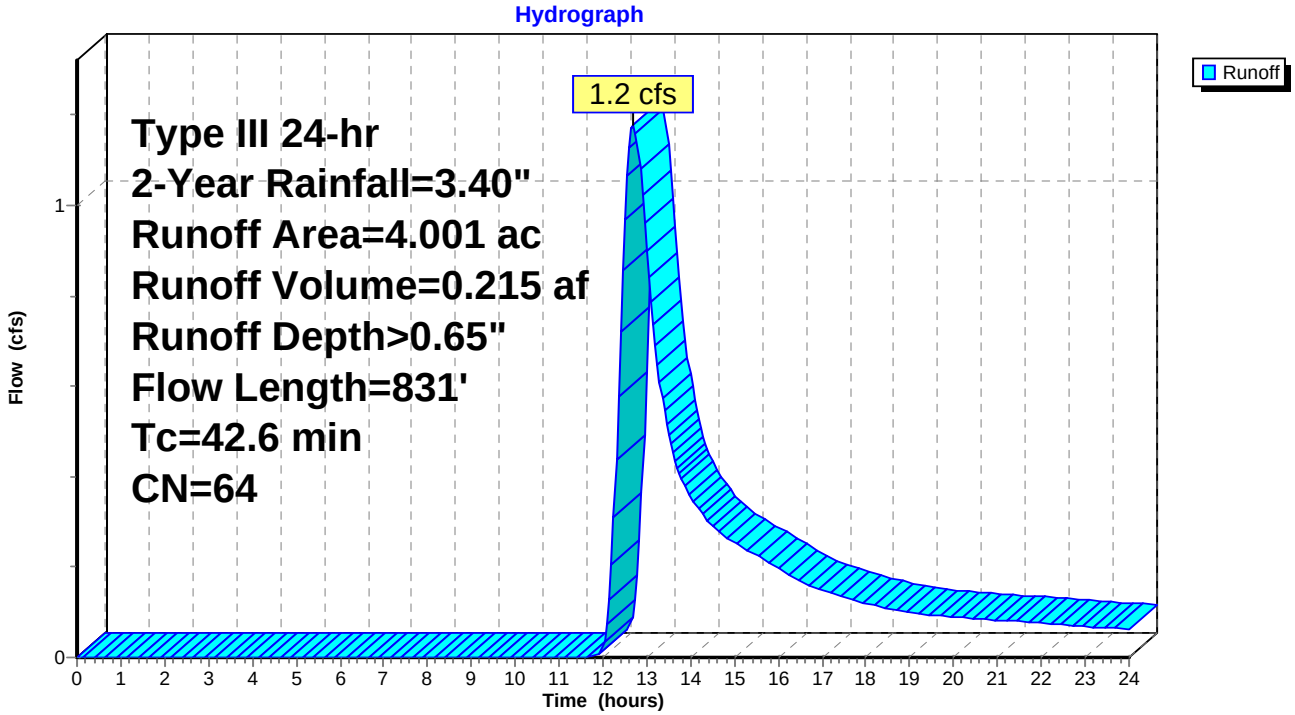
Runoff = 1.2 cfs @ 12.70 hrs, Volume= 0.215 af, Depth> 0.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.40"

Area (ac)	CN	Description
0.450	85	Gravel roads, HSG B
3.551	61	>75% Grass cover, Good, HSG B
4.001	64	Weighted Average
4.001		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.1	100	0.0090	0.09		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.40"
7.1	174	0.0034	0.41		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
16.3	526	0.0059	0.54		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
0.1	31	0.0742	4.39		**Shallow Concentrated Flow, Grass/Gravel** Unpaved Kv= 16.1 fps
42.6	831	Total			

Subcatchment 3S: Area 1 - East



Summary for Subcatchment 4S: Area 2 - West

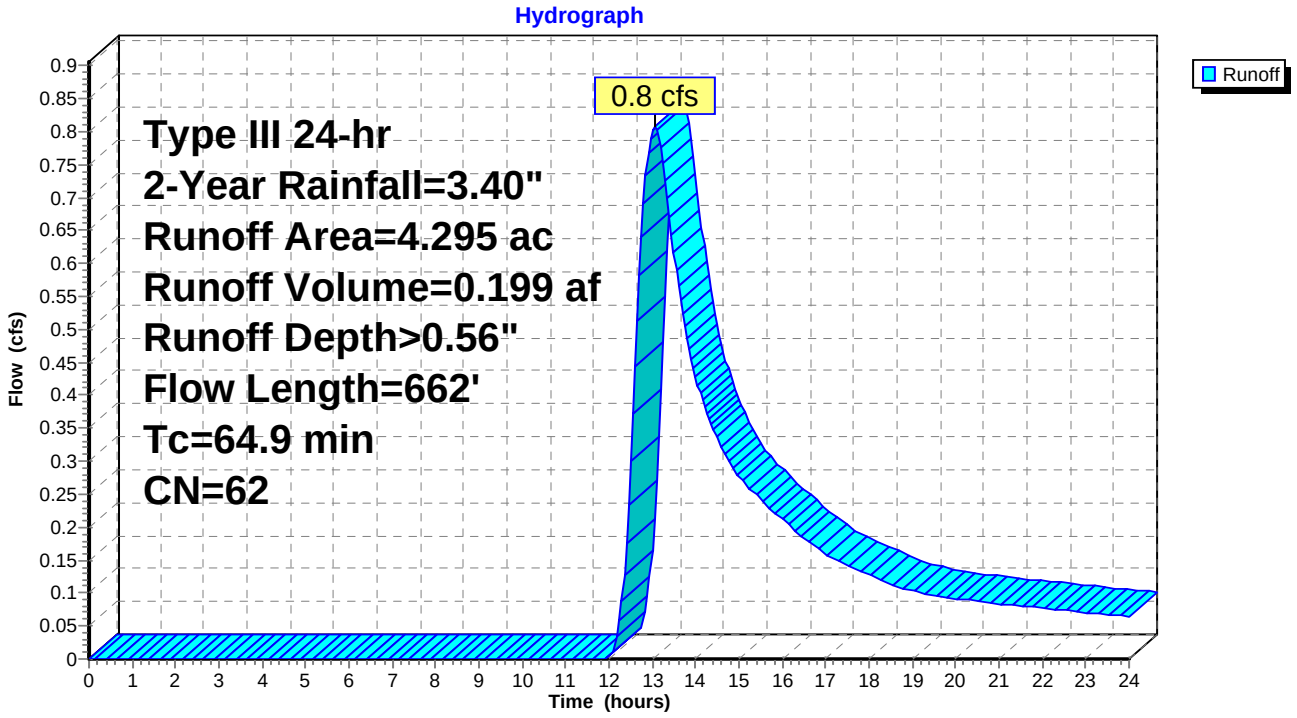
Runoff = 0.8 cfs @ 13.05 hrs, Volume= 0.199 af, Depth> 0.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.40"

Area (ac)	CN	Description
2.163	60	Woods, Fair, HSG B
1.790	61	>75% Grass cover, Good, HSG B
0.342	85	Gravel roads, HSG B
4.295	62	Weighted Average
4.295		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.1	100	0.0080	0.06		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.40"
1.9	86	0.0233	0.76		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
7.5	235	0.0055	0.52		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
25.4	241	0.0010	0.16		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
64.9	662	Total			

Subcatchment 4S: Area 2 - West



Summary for Subcatchment 5S: Area 2 - East

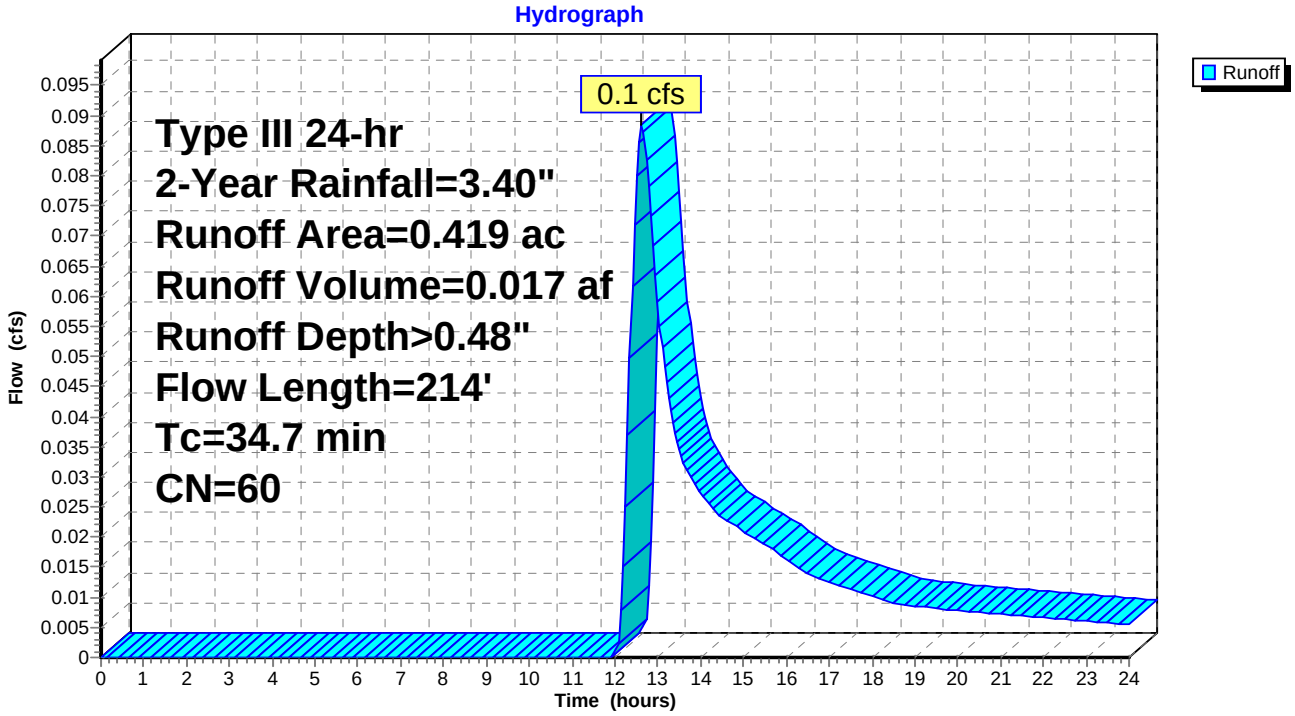
Runoff = 0.1 cfs @ 12.62 hrs, Volume= 0.017 af, Depth> 0.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.40"

Area (ac)	CN	Description
0.215	60	Woods, Fair, HSG B
0.204	61	>75% Grass cover, Good, HSG B
0.419	60	Weighted Average
0.419		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.2	58	0.0034	0.05		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.40"
12.8	42	0.0119	0.05		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.40"
2.8	86	0.0105	0.51		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
0.9	28	0.0050	0.49		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
34.7	214	Total			

Subcatchment 5S: Area 2 - East

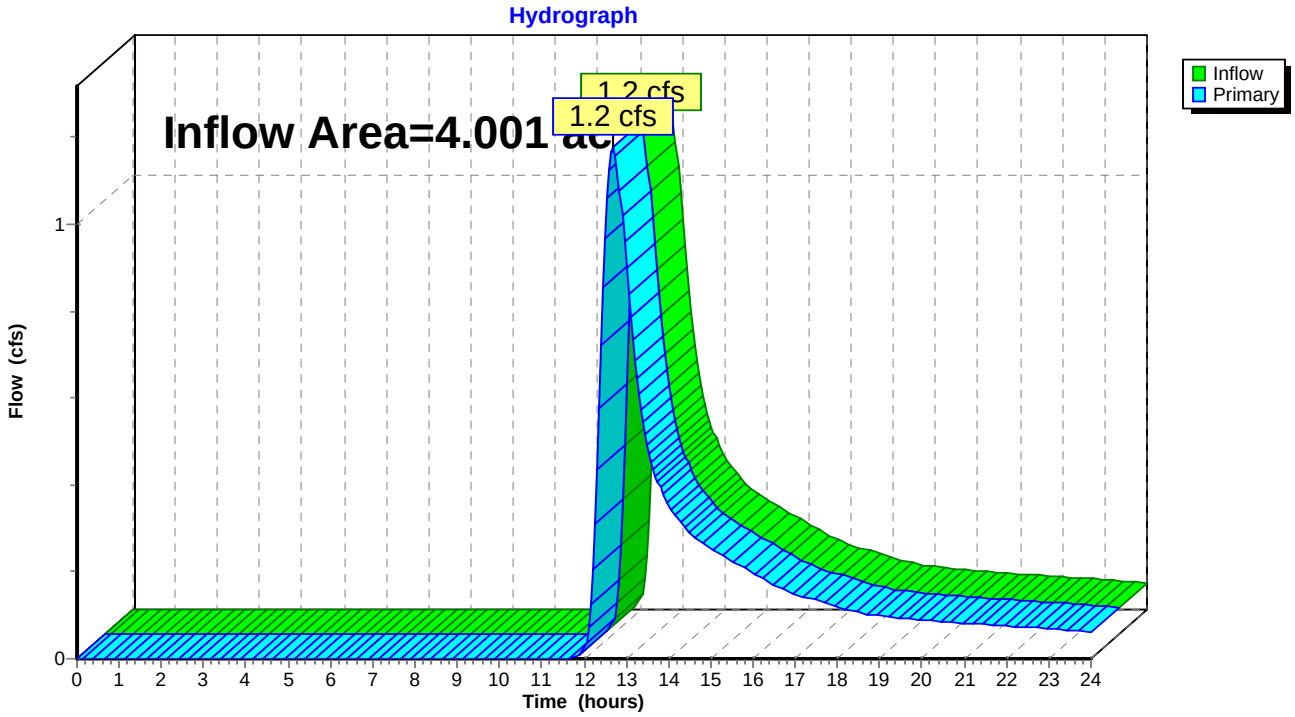


Summary for Link 4L: Wooded Area to East

Inflow Area = 4.001 ac, 0.00% Impervious, Inflow Depth > 0.65" for 2-Year event
Inflow = 1.2 cfs @ 12.70 hrs, Volume= 0.215 af
Primary = 1.2 cfs @ 12.70 hrs, Volume= 0.215 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 4L: Wooded Area to East

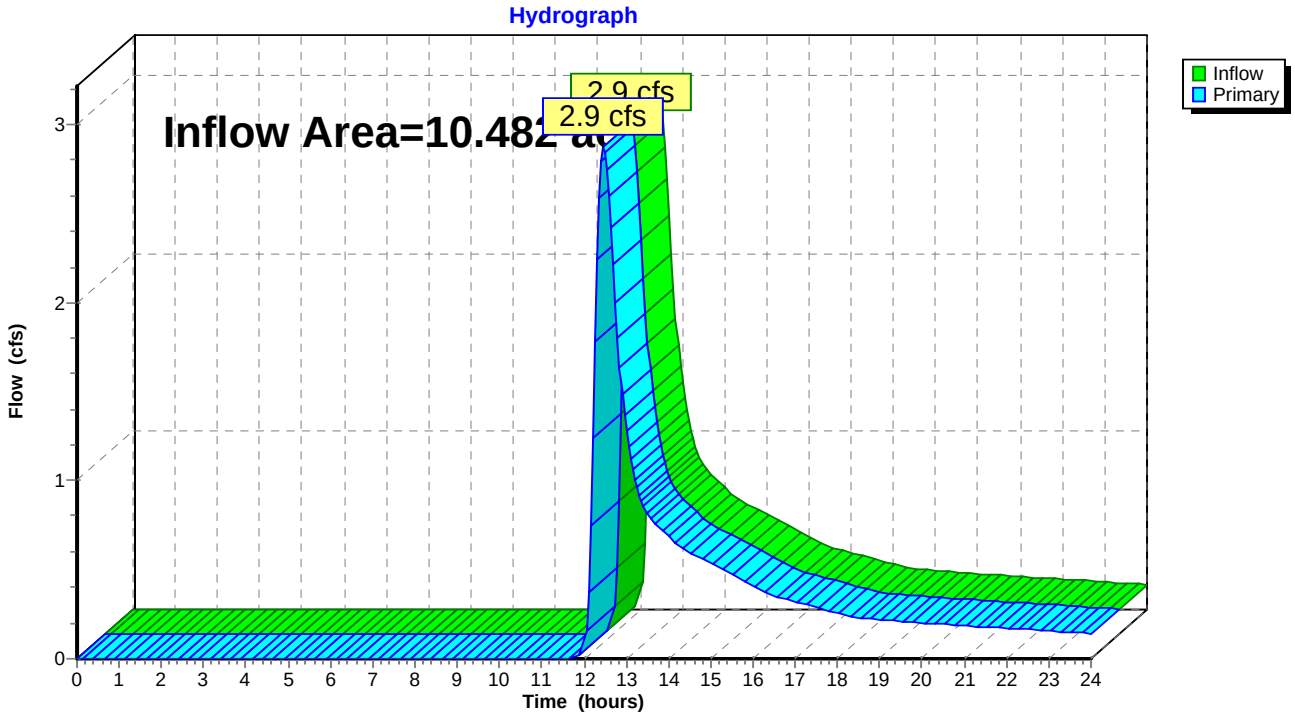


Summary for Link 6L: To Reservoir

Inflow Area = 10.482 ac, 0.00% Impervious, Inflow Depth > 0.53" for 2-Year event
Inflow = 2.9 cfs @ 12.46 hrs, Volume= 0.459 af
Primary = 2.9 cfs @ 12.46 hrs, Volume= 0.459 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 6L: To Reservoir

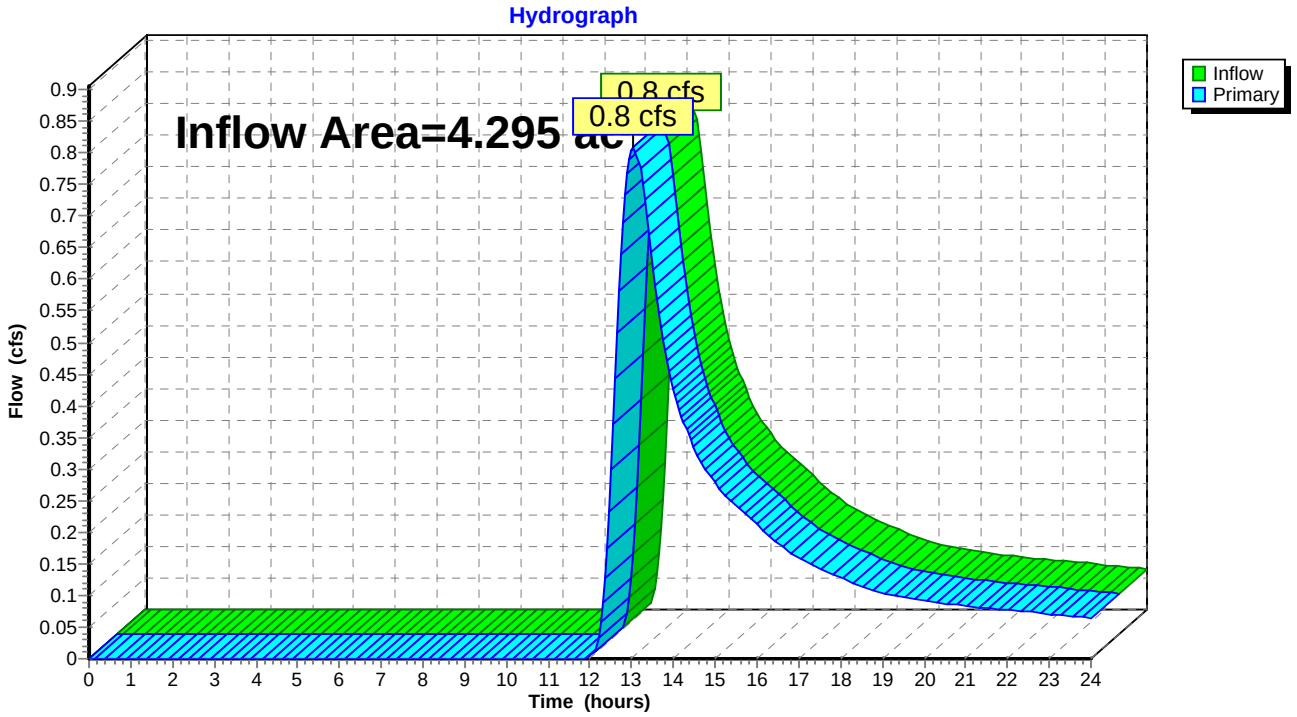


Summary for Link 7L: Off-Site Flow to South

Inflow Area = 4.295 ac, 0.00% Impervious, Inflow Depth > 0.56" for 2-Year event
Inflow = 0.8 cfs @ 13.05 hrs, Volume= 0.199 af
Primary = 0.8 cfs @ 13.05 hrs, Volume= 0.199 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 7L: Off-Site Flow to South

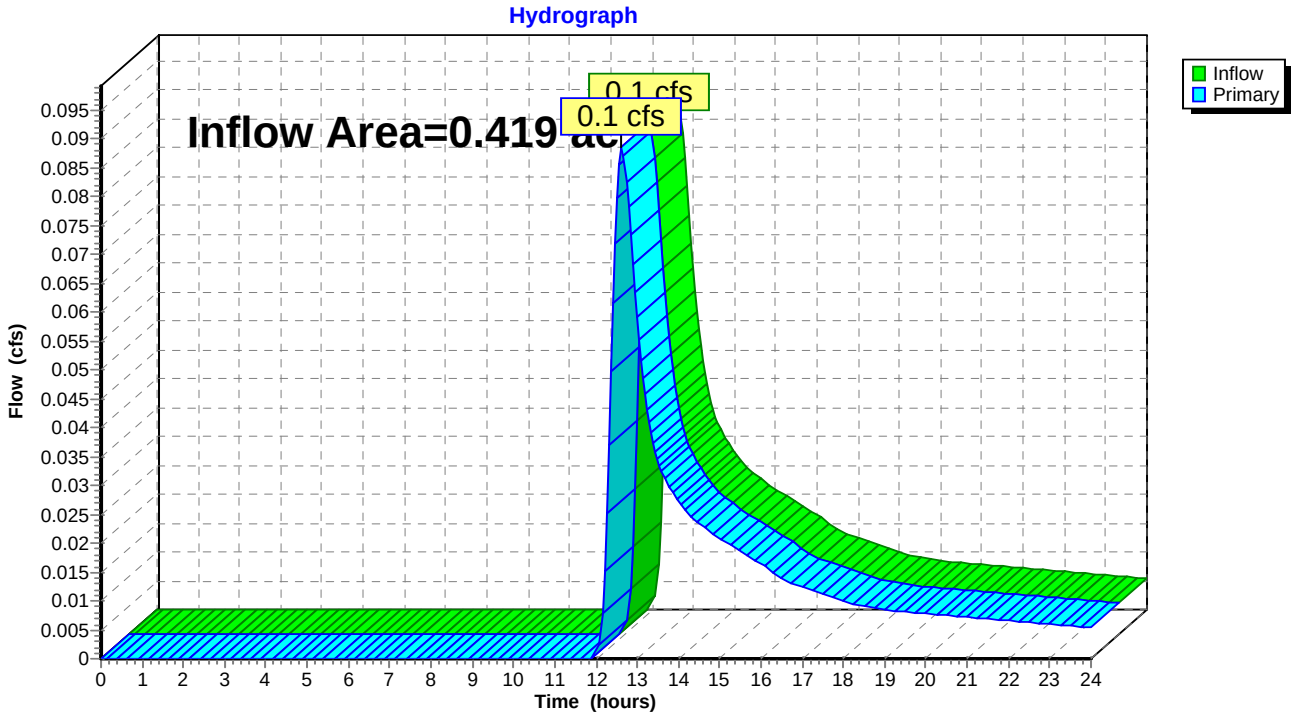


Summary for Link 8L: Off-Site Flow to East

Inflow Area = 0.419 ac, 0.00% Impervious, Inflow Depth > 0.48" for 2-Year event
Inflow = 0.1 cfs @ 12.62 hrs, Volume= 0.017 af
Primary = 0.1 cfs @ 12.62 hrs, Volume= 0.017 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 8L: Off-Site Flow to East



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Area 1 - North Runoff Area=5.074 ac 0.00% Impervious Runoff Depth>0.91"
Flow Length=596' Tc=25.2 min CN=60 Runoff=2.8 cfs 0.383 af

Subcatchment 2S: Area 1 - West Runoff Area=5.408 ac 0.00% Impervious Runoff Depth>1.02"
Flow Length=437' Tc=24.6 min CN=62 Runoff=3.5 cfs 0.459 af

Subcatchment 3S: Area 1 - East Runoff Area=4.001 ac 0.00% Impervious Runoff Depth>1.13"
Flow Length=831' Tc=42.6 min CN=64 Runoff=2.3 cfs 0.377 af

Subcatchment 4S: Area 2 - West Runoff Area=4.295 ac 0.00% Impervious Runoff Depth>1.01"
Flow Length=662' Tc=64.9 min CN=62 Runoff=1.7 cfs 0.360 af

Subcatchment 5S: Area 2 - East Runoff Area=0.419 ac 0.00% Impervious Runoff Depth>0.90"
Flow Length=214' Tc=34.7 min CN=60 Runoff=0.2 cfs 0.032 af

Link 4L: Wooded Area to East Inflow=2.3 cfs 0.377 af
Primary=2.3 cfs 0.377 af

Link 6L: To Reservoir Inflow=6.2 cfs 0.843 af
Primary=6.2 cfs 0.843 af

Link 7L: Off-Site Flow to South Inflow=1.7 cfs 0.360 af
Primary=1.7 cfs 0.360 af

Link 8L: Off-Site Flow to East Inflow=0.2 cfs 0.032 af
Primary=0.2 cfs 0.032 af

Total Runoff Area = 19.197 ac Runoff Volume = 1.611 af Average Runoff Depth = 1.01"
100.00% Pervious = 19.197 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1S: Area 1 - North

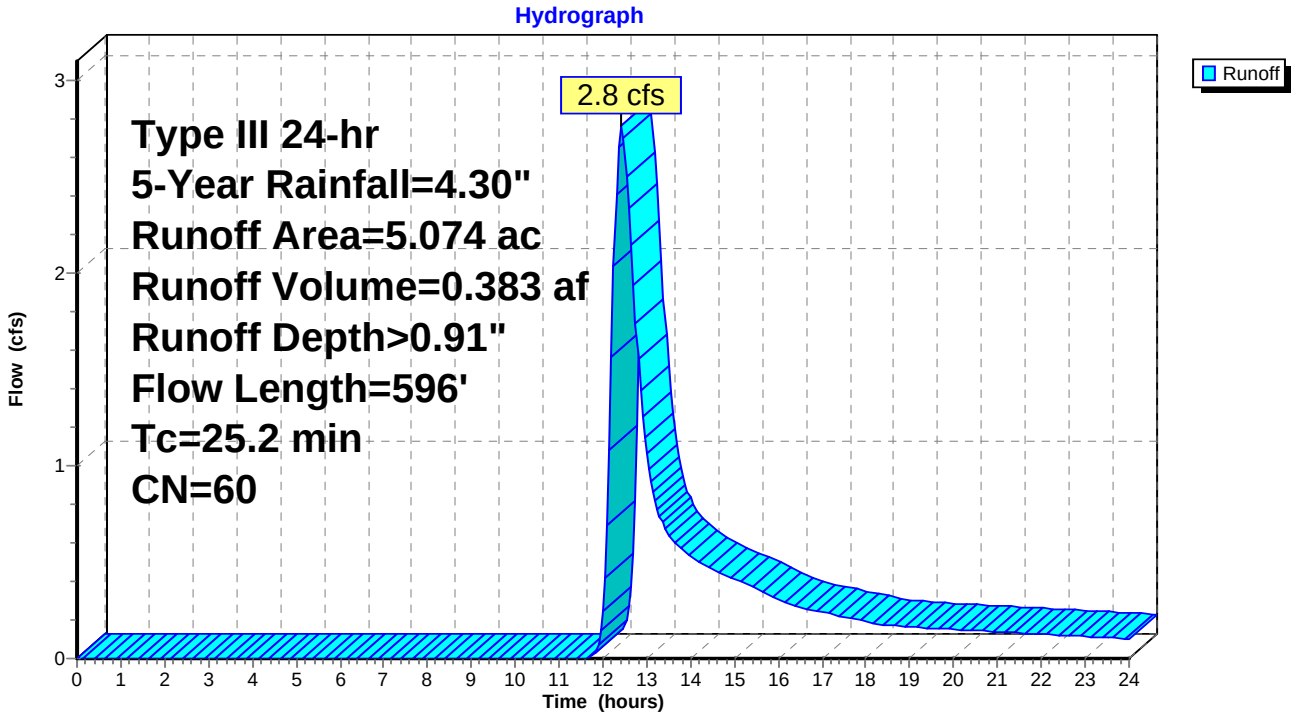
Runoff = 2.8 cfs @ 12.42 hrs, Volume= 0.383 af, Depth> 0.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 5-Year Rainfall=4.30"

Area (ac)	CN	Description
2.589	60	Woods, Fair, HSG B
2.485	61	>75% Grass cover, Good, HSG B
5.074	60	Weighted Average
5.074		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.5	100	0.0177	0.11		**Sheet Flow, Grass and Trees** Grass: Dense n= 0.240 P2= 3.40"
1.0	40	0.0085	0.65		**Shallow Concentrated Flow, Grass and Trees** Short Grass Pasture Kv= 7.0 fps
0.3	32	0.0625	1.75		**Shallow Concentrated Flow, Grass and Trees** Short Grass Pasture Kv= 7.0 fps
2.9	143	0.0140	0.83		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
5.2	211	0.0095	0.68		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
1.3	70	0.0323	0.90		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
25.2	596	Total			

Subcatchment 1S: Area 1 - North



Summary for Subcatchment 2S: Area 1 - West

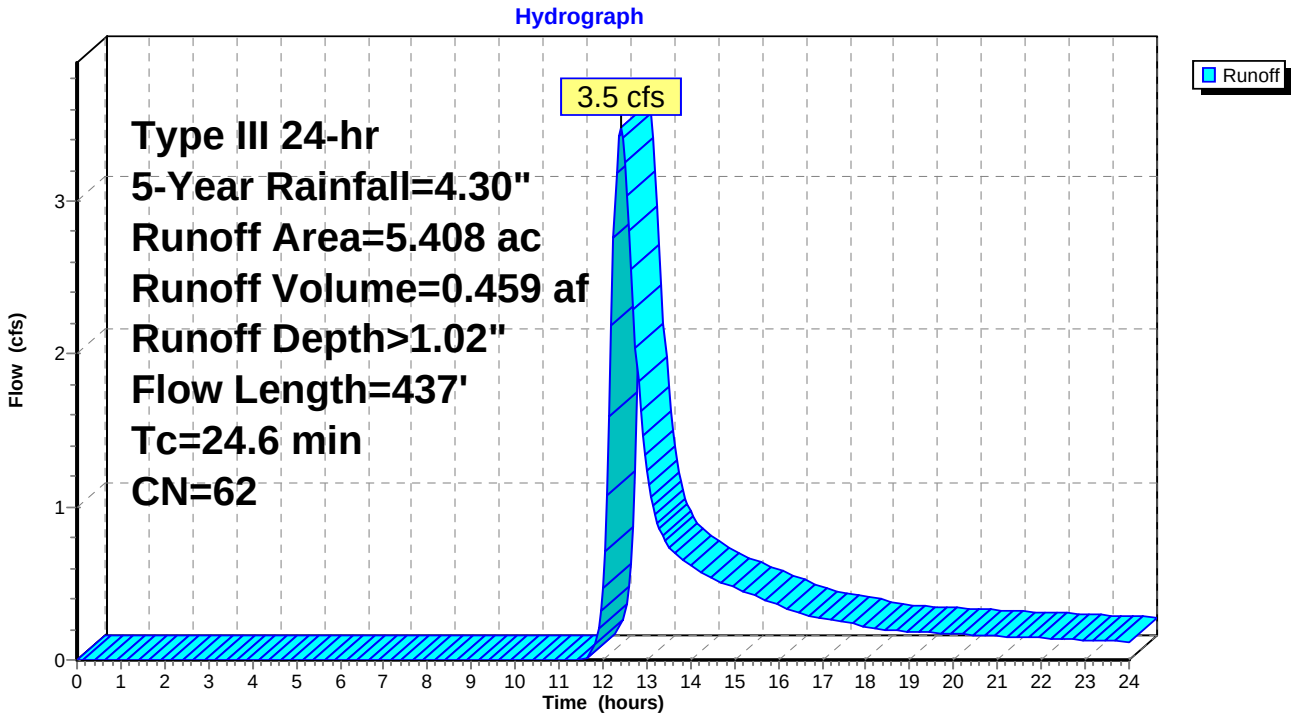
Runoff = 3.5 cfs @ 12.40 hrs, Volume= 0.459 af, Depth> 1.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 5-Year Rainfall=4.30"

Area (ac)	CN	Description
5.144	61	>75% Grass cover, Good, HSG B
0.068	60	Woods, Fair, HSG B
0.196	85	Gravel roads, HSG B
5.408	62	Weighted Average
5.408		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.0	100	0.0120	0.10		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.40"
7.5	312	0.0099	0.70		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
0.1	25	0.1581	2.78		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
24.6	437	Total			

Subcatchment 2S: Area 1 - West



Summary for Subcatchment 3S: Area 1 - East

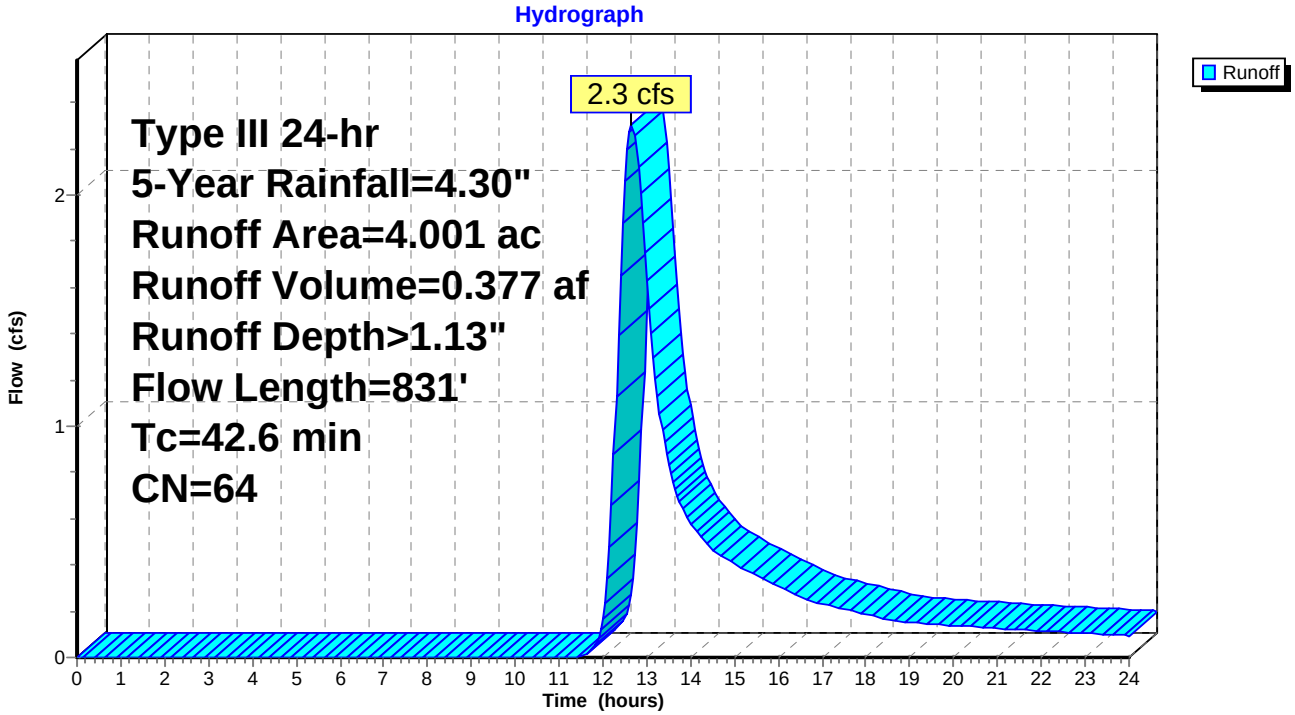
Runoff = 2.3 cfs @ 12.66 hrs, Volume= 0.377 af, Depth> 1.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 5-Year Rainfall=4.30"

Area (ac)	CN	Description
0.450	85	Gravel roads, HSG B
3.551	61	>75% Grass cover, Good, HSG B
4.001	64	Weighted Average
4.001		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.1	100	0.0090	0.09		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.40"
7.1	174	0.0034	0.41		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
16.3	526	0.0059	0.54		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
0.1	31	0.0742	4.39		**Shallow Concentrated Flow, Grass/Gravel** Unpaved Kv= 16.1 fps
42.6	831	Total			

Subcatchment 3S: Area 1 - East



Summary for Subcatchment 4S: Area 2 - West

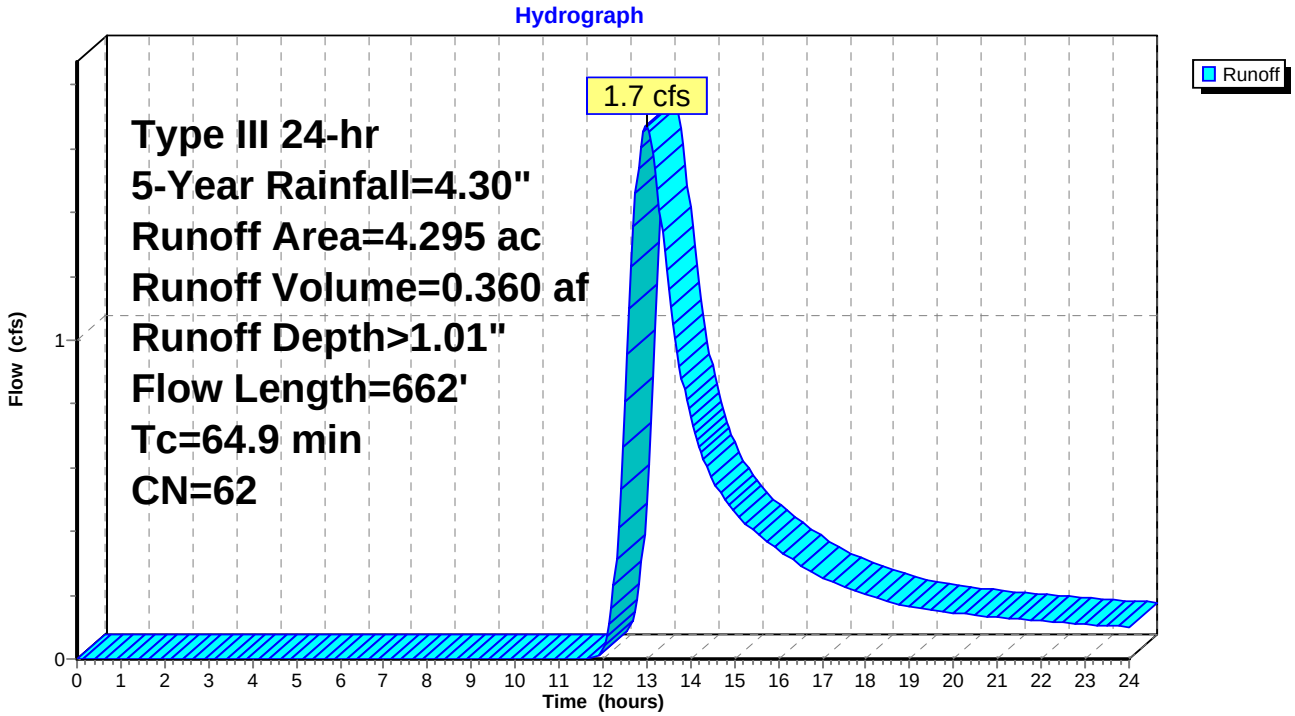
Runoff = 1.7 cfs @ 12.98 hrs, Volume= 0.360 af, Depth> 1.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 5-Year Rainfall=4.30"

Area (ac)	CN	Description
2.163	60	Woods, Fair, HSG B
1.790	61	>75% Grass cover, Good, HSG B
0.342	85	Gravel roads, HSG B
4.295	62	Weighted Average
4.295		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.1	100	0.0080	0.06		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.40"
1.9	86	0.0233	0.76		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
7.5	235	0.0055	0.52		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
25.4	241	0.0010	0.16		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
64.9	662	Total			

Subcatchment 4S: Area 2 - West



Summary for Subcatchment 5S: Area 2 - East

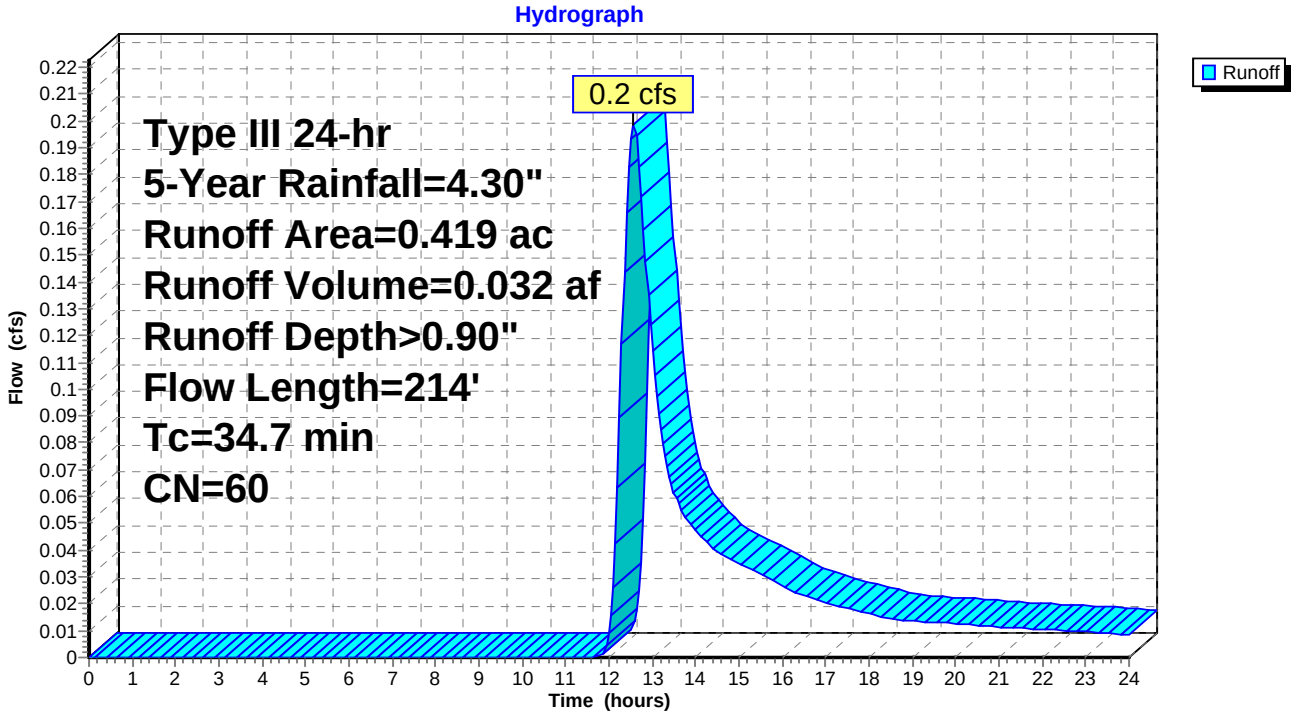
Runoff = 0.2 cfs @ 12.57 hrs, Volume= 0.032 af, Depth> 0.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 5-Year Rainfall=4.30"

Area (ac)	CN	Description
0.215	60	Woods, Fair, HSG B
0.204	61	>75% Grass cover, Good, HSG B
0.419	60	Weighted Average
0.419		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.2	58	0.0034	0.05		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.40"
12.8	42	0.0119	0.05		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.40"
2.8	86	0.0105	0.51		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
0.9	28	0.0050	0.49		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
34.7	214	Total			

Subcatchment 5S: Area 2 - East

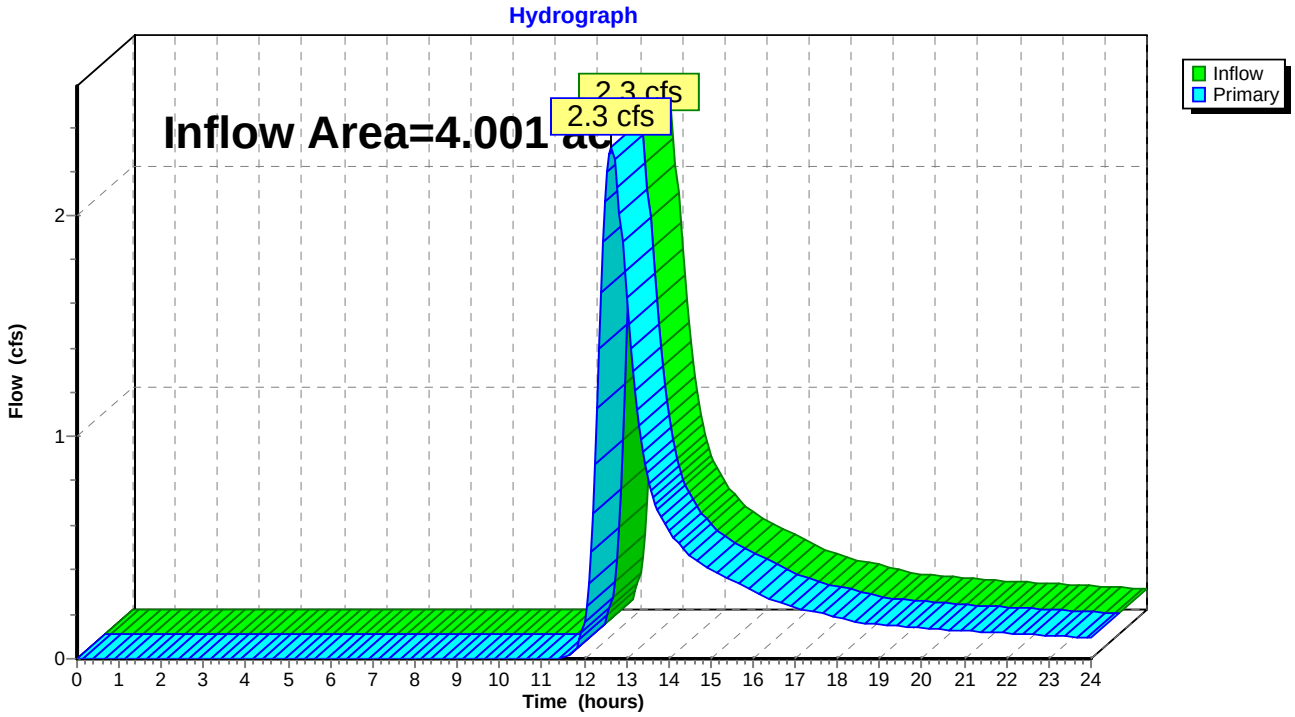


Summary for Link 4L: Wooded Area to East

Inflow Area = 4.001 ac, 0.00% Impervious, Inflow Depth > 1.13" for 5-Year event
Inflow = 2.3 cfs @ 12.66 hrs, Volume= 0.377 af
Primary = 2.3 cfs @ 12.66 hrs, Volume= 0.377 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 4L: Wooded Area to East

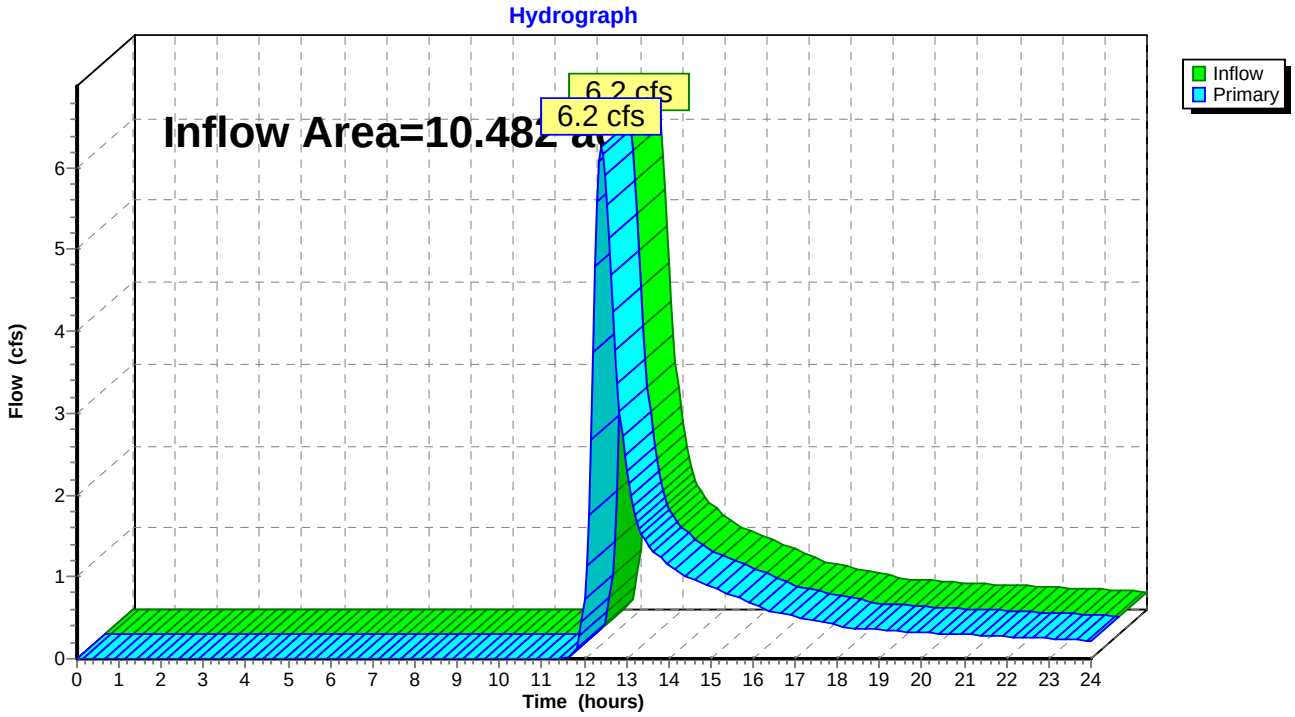


Summary for Link 6L: To Reservoir

Inflow Area = 10.482 ac, 0.00% Impervious, Inflow Depth > 0.96" for 5-Year event
Inflow = 6.2 cfs @ 12.41 hrs, Volume= 0.843 af
Primary = 6.2 cfs @ 12.41 hrs, Volume= 0.843 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 6L: To Reservoir

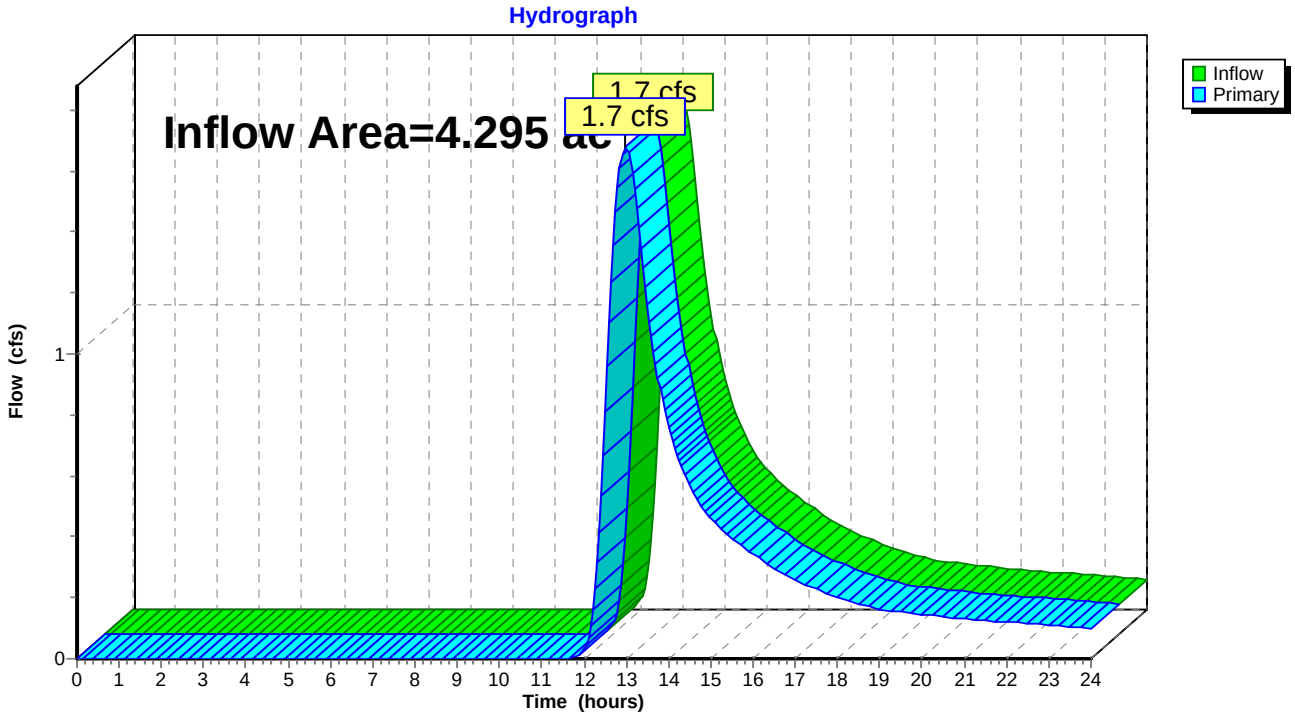


Summary for Link 7L: Off-Site Flow to South

Inflow Area = 4.295 ac, 0.00% Impervious, Inflow Depth > 1.01" for 5-Year event
Inflow = 1.7 cfs @ 12.98 hrs, Volume= 0.360 af
Primary = 1.7 cfs @ 12.98 hrs, Volume= 0.360 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 7L: Off-Site Flow to South

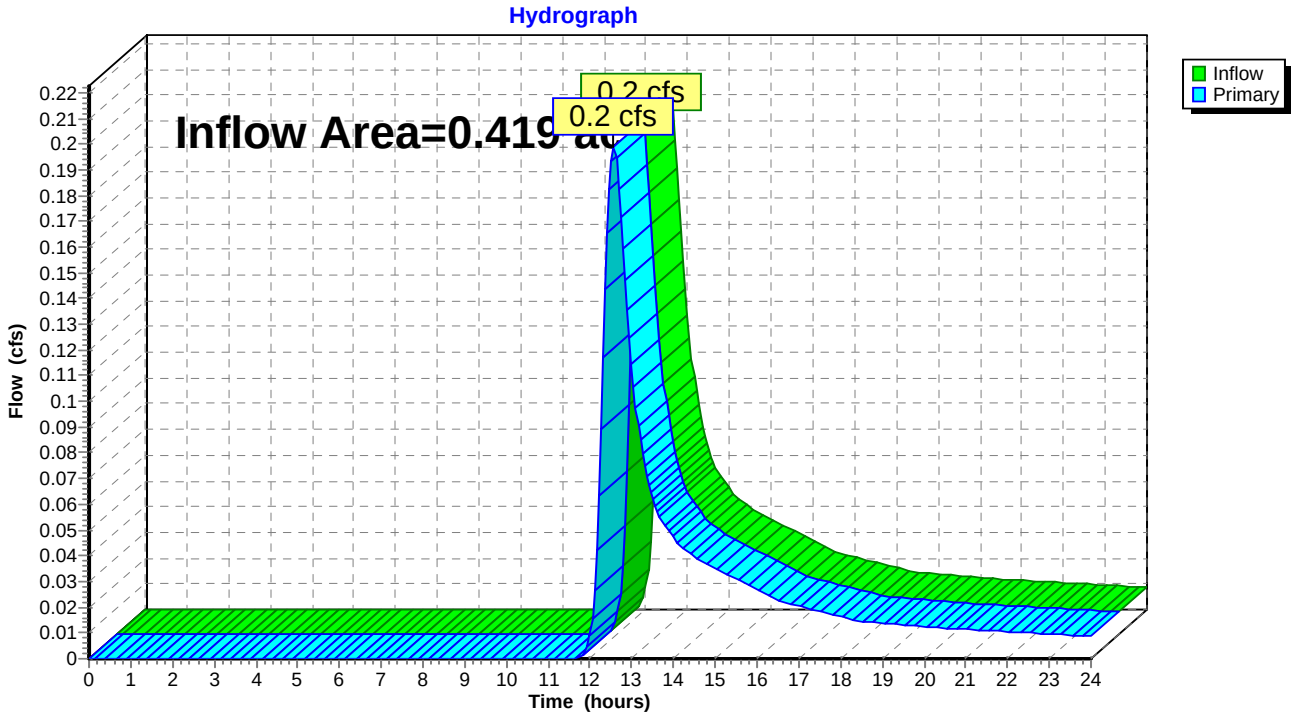


Summary for Link 8L: Off-Site Flow to East

Inflow Area = 0.419 ac, 0.00% Impervious, Inflow Depth > 0.90" for 5-Year event
Inflow = 0.2 cfs @ 12.57 hrs, Volume= 0.032 af
Primary = 0.2 cfs @ 12.57 hrs, Volume= 0.032 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 8L: Off-Site Flow to East



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Area 1 - North Runoff Area=5.074 ac 0.00% Impervious Runoff Depth>1.29"
Flow Length=596' Tc=25.2 min CN=60 Runoff=4.2 cfs 0.546 af

Subcatchment 2S: Area 1 - West Runoff Area=5.408 ac 0.00% Impervious Runoff Depth>1.43"
Flow Length=437' Tc=24.6 min CN=62 Runoff=5.2 cfs 0.644 af

Subcatchment 3S: Area 1 - East Runoff Area=4.001 ac 0.00% Impervious Runoff Depth>1.56"
Flow Length=831' Tc=42.6 min CN=64 Runoff=3.3 cfs 0.521 af

Subcatchment 4S: Area 2 - West Runoff Area=4.295 ac 0.00% Impervious Runoff Depth>1.41"
Flow Length=662' Tc=64.9 min CN=62 Runoff=2.5 cfs 0.505 af

Subcatchment 5S: Area 2 - East Runoff Area=0.419 ac 0.00% Impervious Runoff Depth>1.29"
Flow Length=214' Tc=34.7 min CN=60 Runoff=0.3 cfs 0.045 af

Link 4L: Wooded Area to East Inflow=3.3 cfs 0.521 af
Primary=3.3 cfs 0.521 af

Link 6L: To Reservoir Inflow=9.4 cfs 1.190 af
Primary=9.4 cfs 1.190 af

Link 7L: Off-Site Flow to South Inflow=2.5 cfs 0.505 af
Primary=2.5 cfs 0.505 af

Link 8L: Off-Site Flow to East Inflow=0.3 cfs 0.045 af
Primary=0.3 cfs 0.045 af

Total Runoff Area = 19.197 ac Runoff Volume = 2.261 af Average Runoff Depth = 1.41"
100.00% Pervious = 19.197 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1S: Area 1 - North

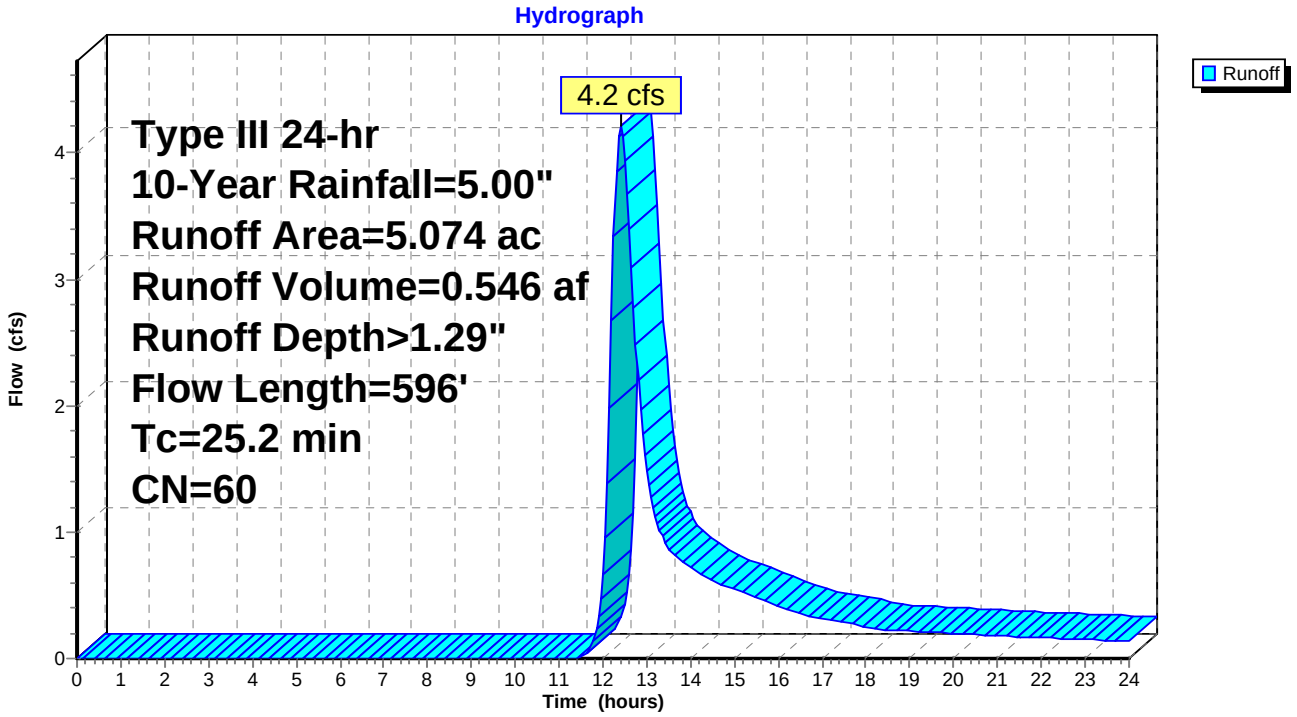
Runoff = 4.2 cfs @ 12.40 hrs, Volume= 0.546 af, Depth> 1.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.00"

Area (ac)	CN	Description
2.589	60	Woods, Fair, HSG B
2.485	61	>75% Grass cover, Good, HSG B
5.074	60	Weighted Average
5.074		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.5	100	0.0177	0.11		**Sheet Flow, Grass and Trees** Grass: Dense n= 0.240 P2= 3.40"
1.0	40	0.0085	0.65		**Shallow Concentrated Flow, Grass and Trees** Short Grass Pasture Kv= 7.0 fps
0.3	32	0.0625	1.75		**Shallow Concentrated Flow, Grass and Trees** Short Grass Pasture Kv= 7.0 fps
2.9	143	0.0140	0.83		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
5.2	211	0.0095	0.68		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
1.3	70	0.0323	0.90		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
25.2	596	Total			

Subcatchment 1S: Area 1 - North



Summary for Subcatchment 2S: Area 1 - West

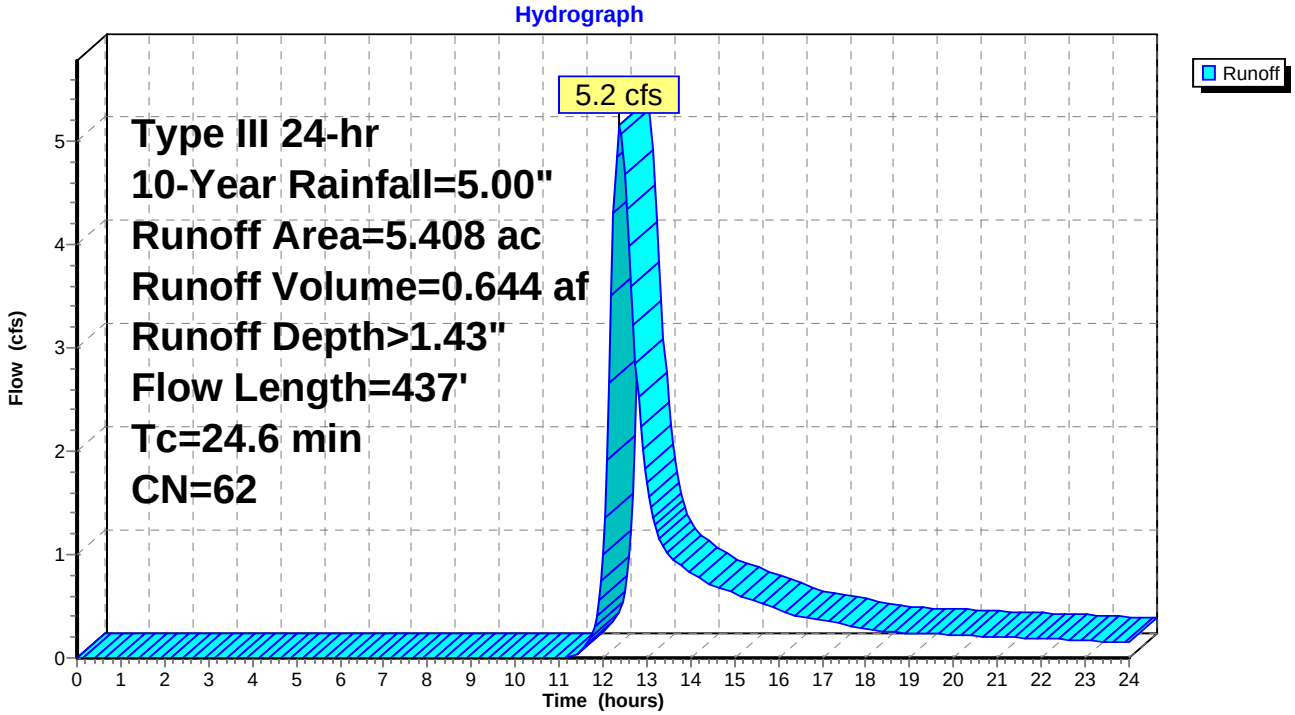
Runoff = 5.2 cfs @ 12.38 hrs, Volume= 0.644 af, Depth> 1.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.00"

Area (ac)	CN	Description
5.144	61	>75% Grass cover, Good, HSG B
0.068	60	Woods, Fair, HSG B
0.196	85	Gravel roads, HSG B
5.408	62	Weighted Average
5.408		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.0	100	0.0120	0.10		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.40"
7.5	312	0.0099	0.70		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
0.1	25	0.1581	2.78		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
24.6	437	Total			

Subcatchment 2S: Area 1 - West



Summary for Subcatchment 3S: Area 1 - East

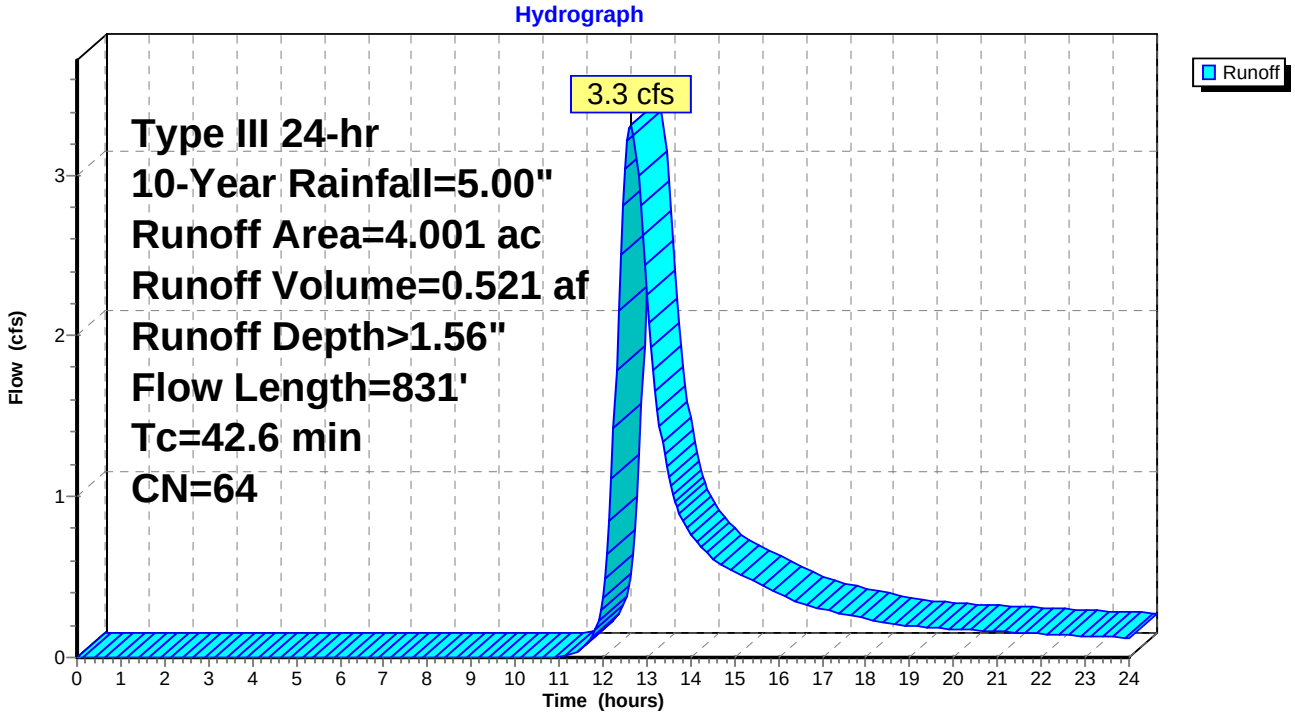
Runoff = 3.3 cfs @ 12.64 hrs, Volume= 0.521 af, Depth> 1.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.00"

Area (ac)	CN	Description
0.450	85	Gravel roads, HSG B
3.551	61	>75% Grass cover, Good, HSG B
4.001	64	Weighted Average
4.001		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.1	100	0.0090	0.09		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.40"
7.1	174	0.0034	0.41		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
16.3	526	0.0059	0.54		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
0.1	31	0.0742	4.39		**Shallow Concentrated Flow, Grass/Gravel** Unpaved Kv= 16.1 fps
42.6	831	Total			

Subcatchment 3S: Area 1 - East



Summary for Subcatchment 4S: Area 2 - West

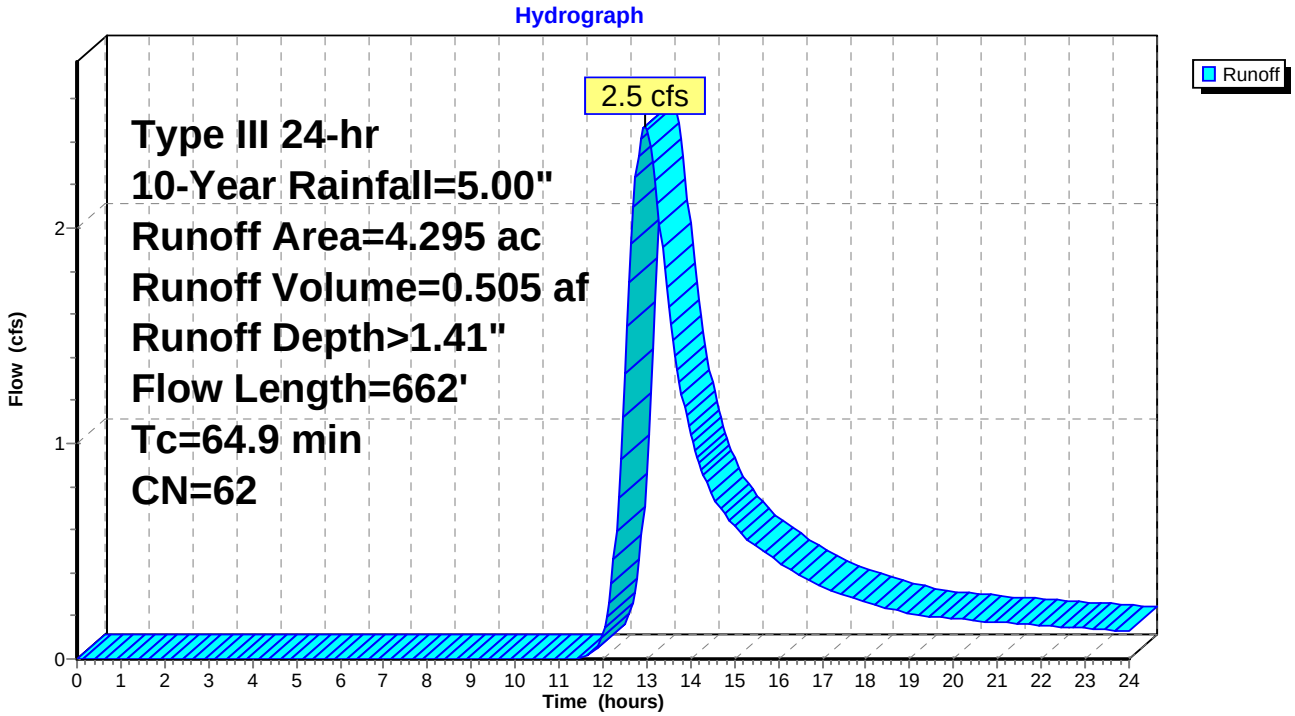
Runoff = 2.5 cfs @ 12.95 hrs, Volume= 0.505 af, Depth> 1.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.00"

Area (ac)	CN	Description
2.163	60	Woods, Fair, HSG B
1.790	61	>75% Grass cover, Good, HSG B
0.342	85	Gravel roads, HSG B
4.295	62	Weighted Average
4.295		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.1	100	0.0080	0.06		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.40"
1.9	86	0.0233	0.76		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
7.5	235	0.0055	0.52		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
25.4	241	0.0010	0.16		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
64.9	662	Total			

Subcatchment 4S: Area 2 - West



Summary for Subcatchment 5S: Area 2 - East

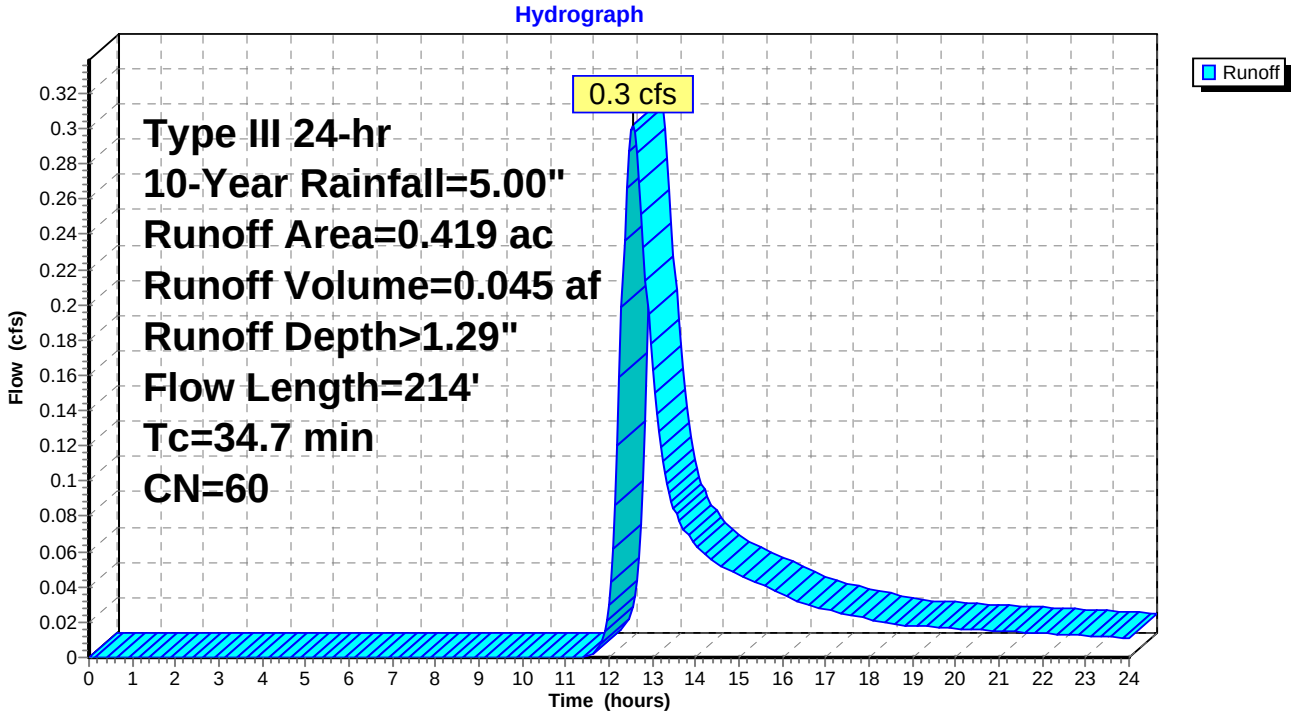
Runoff = 0.3 cfs @ 12.55 hrs, Volume= 0.045 af, Depth> 1.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.00"

Area (ac)	CN	Description
0.215	60	Woods, Fair, HSG B
0.204	61	>75% Grass cover, Good, HSG B
0.419	60	Weighted Average
0.419		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.2	58	0.0034	0.05		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.40"
12.8	42	0.0119	0.05		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.40"
2.8	86	0.0105	0.51		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
0.9	28	0.0050	0.49		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
34.7	214	Total			

Subcatchment 5S: Area 2 - East

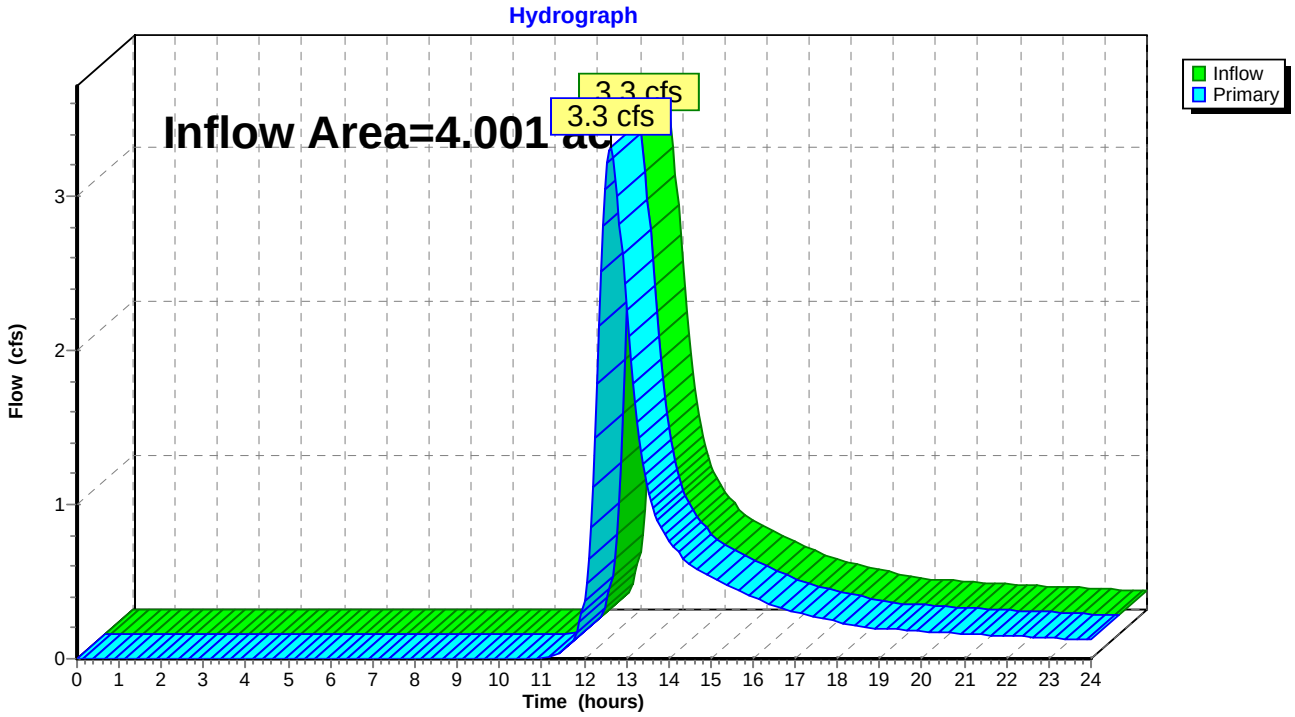


Summary for Link 4L: Wooded Area to East

Inflow Area = 4.001 ac, 0.00% Impervious, Inflow Depth > 1.56" for 10-Year event
Inflow = 3.3 cfs @ 12.64 hrs, Volume= 0.521 af
Primary = 3.3 cfs @ 12.64 hrs, Volume= 0.521 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 4L: Wooded Area to East

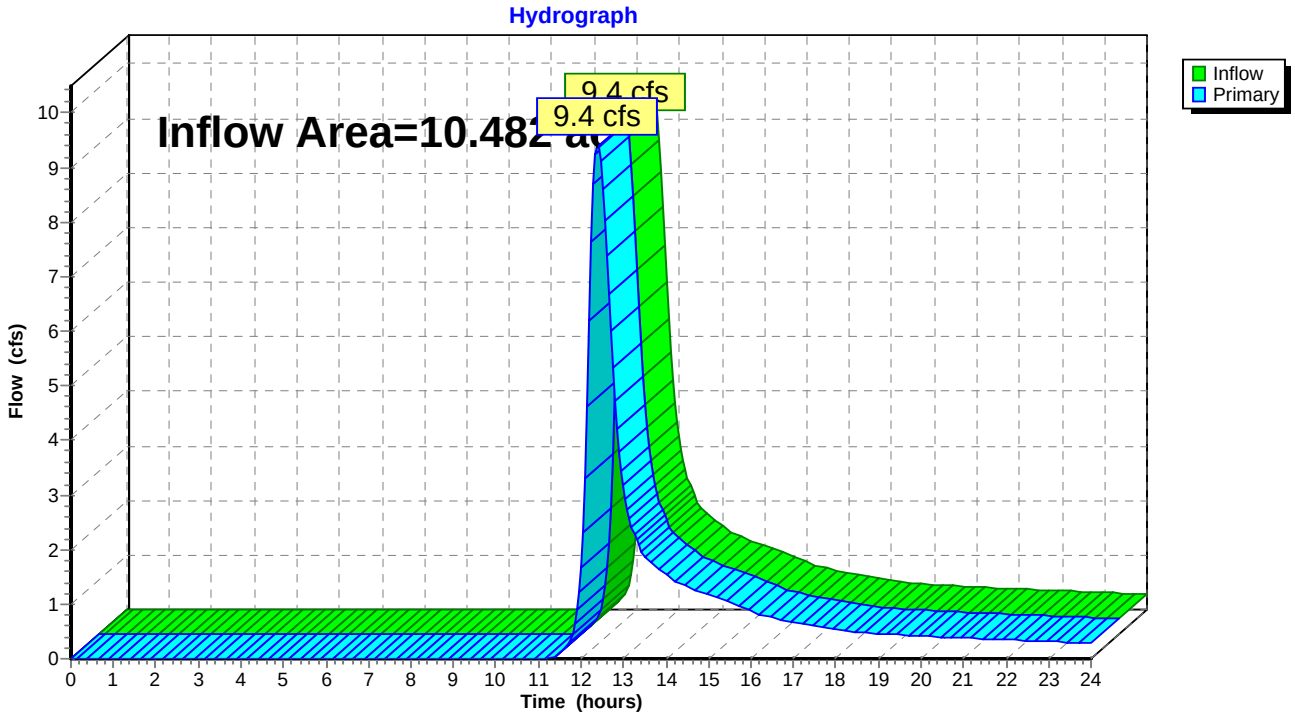


Summary for Link 6L: To Reservoir

Inflow Area = 10.482 ac, 0.00% Impervious, Inflow Depth > 1.36" for 10-Year event
Inflow = 9.4 cfs @ 12.39 hrs, Volume= 1.190 af
Primary = 9.4 cfs @ 12.39 hrs, Volume= 1.190 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 6L: To Reservoir

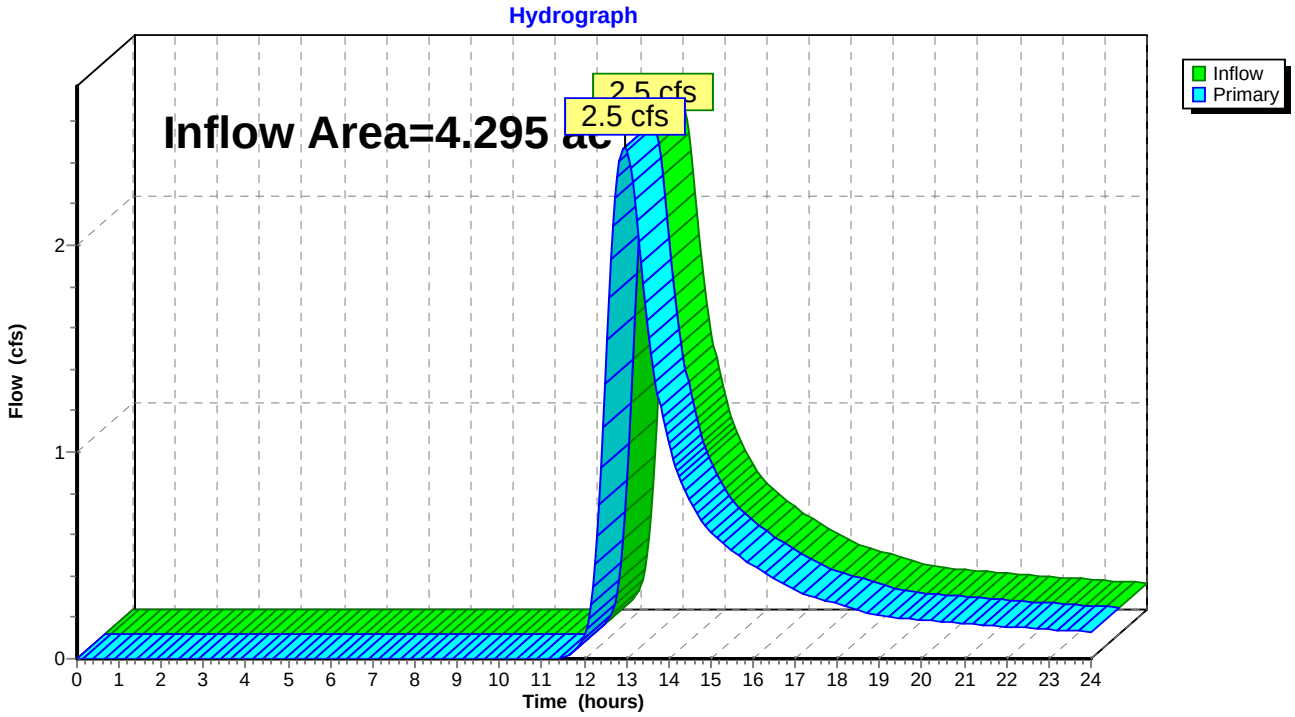


Summary for Link 7L: Off-Site Flow to South

Inflow Area = 4.295 ac, 0.00% Impervious, Inflow Depth > 1.41" for 10-Year event
Inflow = 2.5 cfs @ 12.95 hrs, Volume= 0.505 af
Primary = 2.5 cfs @ 12.95 hrs, Volume= 0.505 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 7L: Off-Site Flow to South

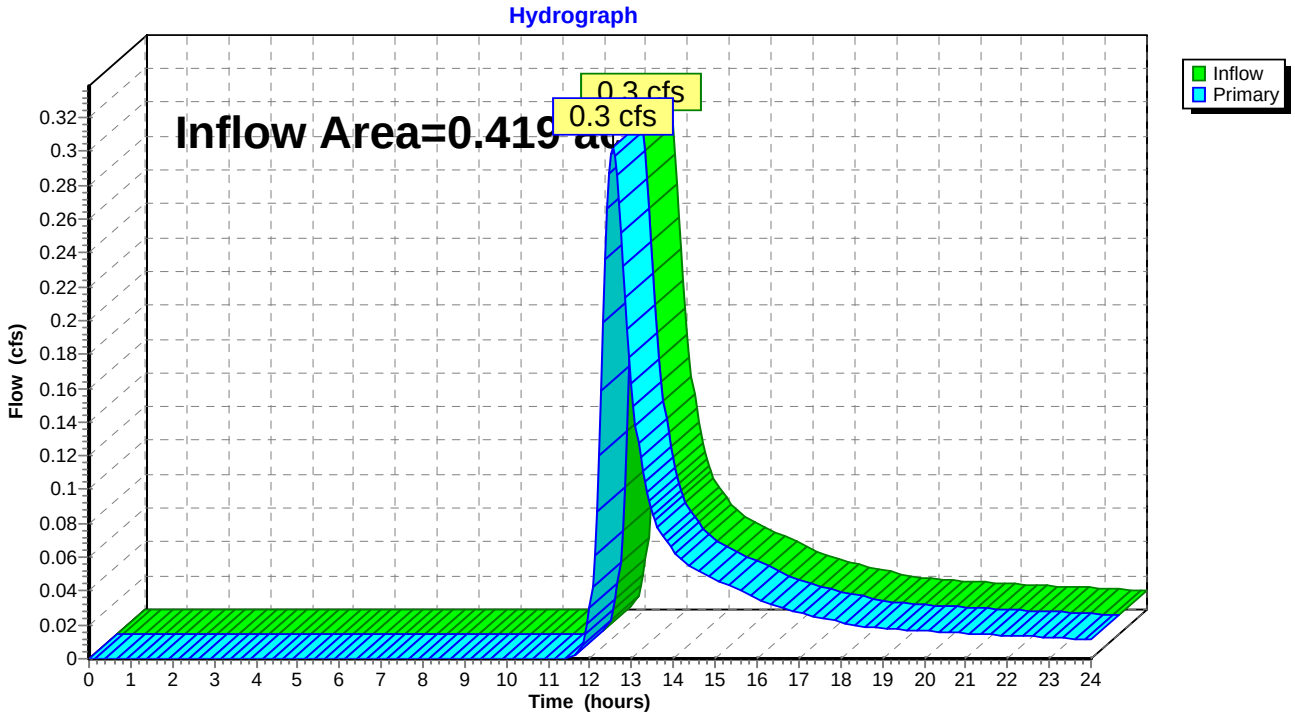


Summary for Link 8L: Off-Site Flow to East

Inflow Area = 0.419 ac, 0.00% Impervious, Inflow Depth > 1.29" for 10-Year event
Inflow = 0.3 cfs @ 12.55 hrs, Volume= 0.045 af
Primary = 0.3 cfs @ 12.55 hrs, Volume= 0.045 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 8L: Off-Site Flow to East



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Area 1 - North Runoff Area=5.074 ac 0.00% Impervious Runoff Depth>1.72"
Flow Length=596' Tc=25.2 min CN=60 Runoff=5.8 cfs 0.726 af

Subcatchment 2S: Area 1 - West Runoff Area=5.408 ac 0.00% Impervious Runoff Depth>1.88"
Flow Length=437' Tc=24.6 min CN=62 Runoff=7.0 cfs 0.846 af

Subcatchment 3S: Area 1 - East Runoff Area=4.001 ac 0.00% Impervious Runoff Depth>2.03"
Flow Length=831' Tc=42.6 min CN=64 Runoff=4.4 cfs 0.677 af

Subcatchment 4S: Area 2 - West Runoff Area=4.295 ac 0.00% Impervious Runoff Depth>1.85"
Flow Length=662' Tc=64.9 min CN=62 Runoff=3.4 cfs 0.664 af

Subcatchment 5S: Area 2 - East Runoff Area=0.419 ac 0.00% Impervious Runoff Depth>1.71"
Flow Length=214' Tc=34.7 min CN=60 Runoff=0.4 cfs 0.060 af

Link 4L: Wooded Area to East Inflow=4.4 cfs 0.677 af
Primary=4.4 cfs 0.677 af

Link 6L: To Reservoir Inflow=12.8 cfs 1.571 af
Primary=12.8 cfs 1.571 af

Link 7L: Off-Site Flow to South Inflow=3.4 cfs 0.664 af
Primary=3.4 cfs 0.664 af

Link 8L: Off-Site Flow to East Inflow=0.4 cfs 0.060 af
Primary=0.4 cfs 0.060 af

Total Runoff Area = 19.197 ac Runoff Volume = 2.971 af Average Runoff Depth = 1.86"
100.00% Pervious = 19.197 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1S: Area 1 - North

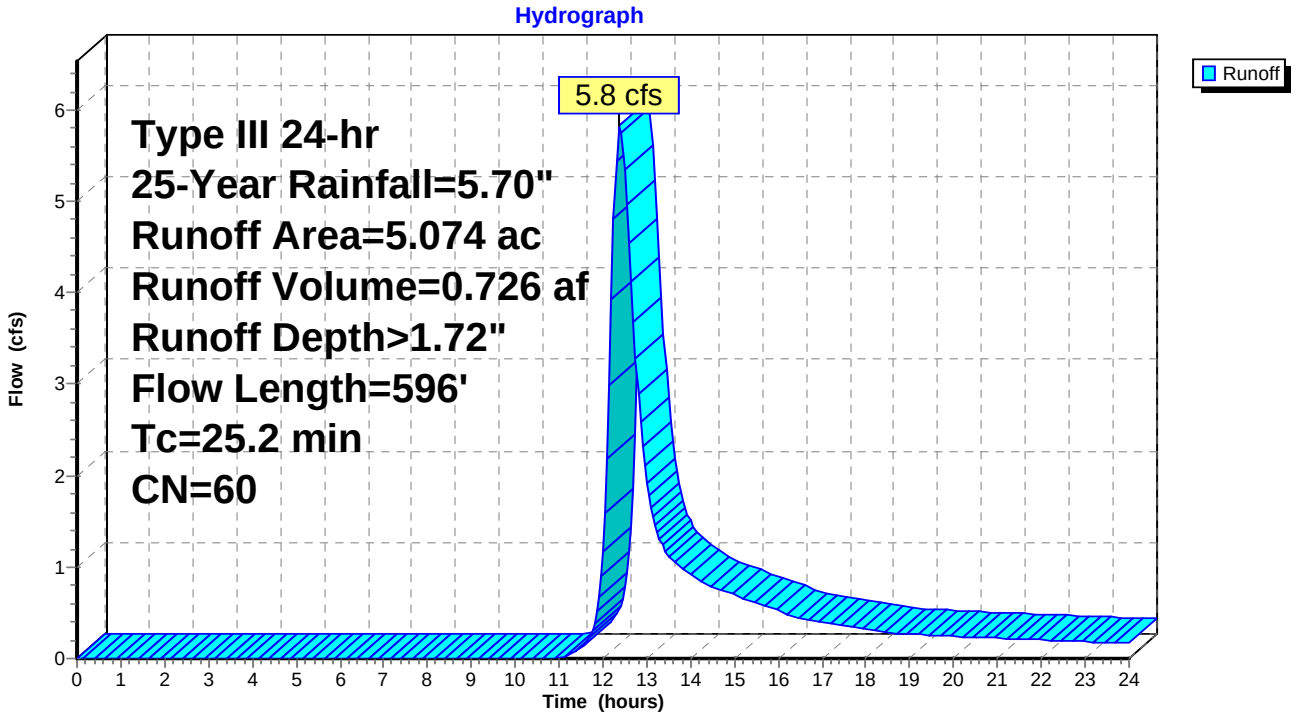
Runoff = 5.8 cfs @ 12.39 hrs, Volume= 0.726 af, Depth> 1.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.70"

Area (ac)	CN	Description
2.589	60	Woods, Fair, HSG B
2.485	61	>75% Grass cover, Good, HSG B
5.074	60	Weighted Average
5.074		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.5	100	0.0177	0.11		**Sheet Flow, Grass and Trees** Grass: Dense n= 0.240 P2= 3.40"
1.0	40	0.0085	0.65		**Shallow Concentrated Flow, Grass and Trees** Short Grass Pasture Kv= 7.0 fps
0.3	32	0.0625	1.75		**Shallow Concentrated Flow, Grass and Trees** Short Grass Pasture Kv= 7.0 fps
2.9	143	0.0140	0.83		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
5.2	211	0.0095	0.68		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
1.3	70	0.0323	0.90		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
25.2	596	Total			

Subcatchment 1S: Area 1 - North



Summary for Subcatchment 2S: Area 1 - West

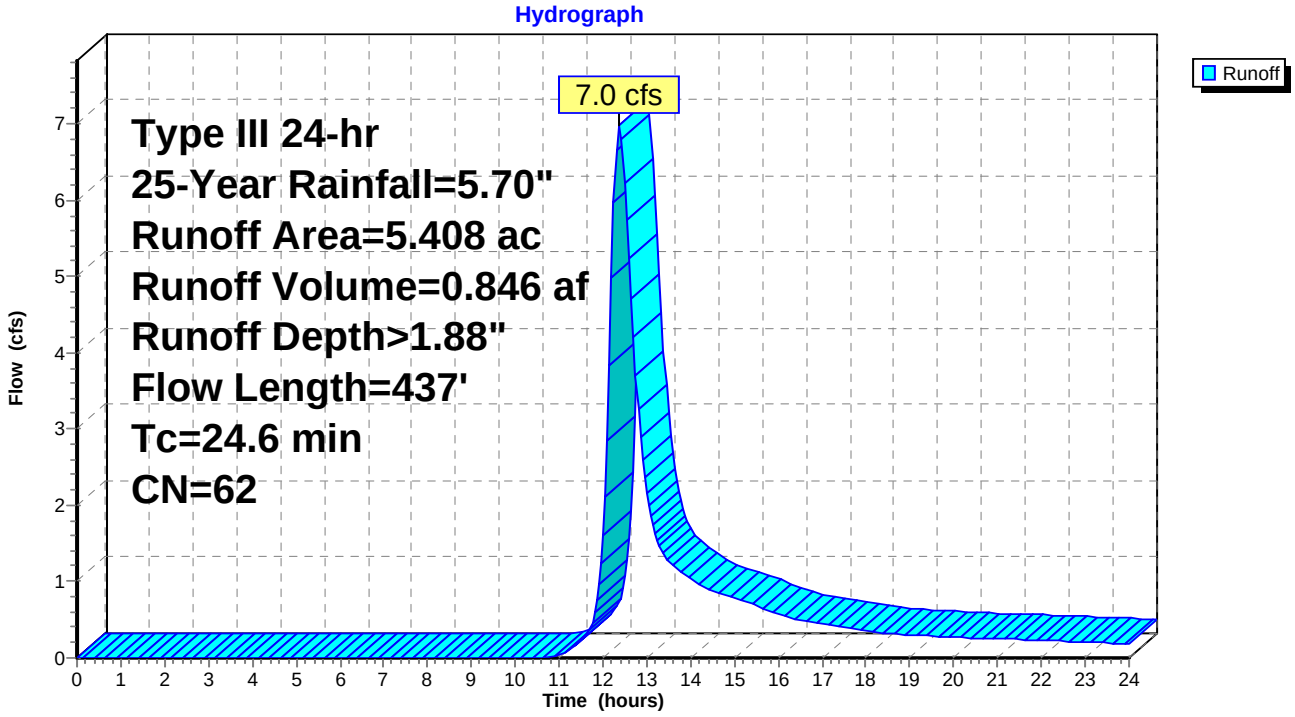
Runoff = 7.0 cfs @ 12.37 hrs, Volume= 0.846 af, Depth> 1.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.70"

Area (ac)	CN	Description
5.144	61	>75% Grass cover, Good, HSG B
0.068	60	Woods, Fair, HSG B
0.196	85	Gravel roads, HSG B
5.408	62	Weighted Average
5.408		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.0	100	0.0120	0.10		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.40"
7.5	312	0.0099	0.70		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
0.1	25	0.1581	2.78		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
24.6	437	Total			

Subcatchment 2S: Area 1 - West



Summary for Subcatchment 3S: Area 1 - East

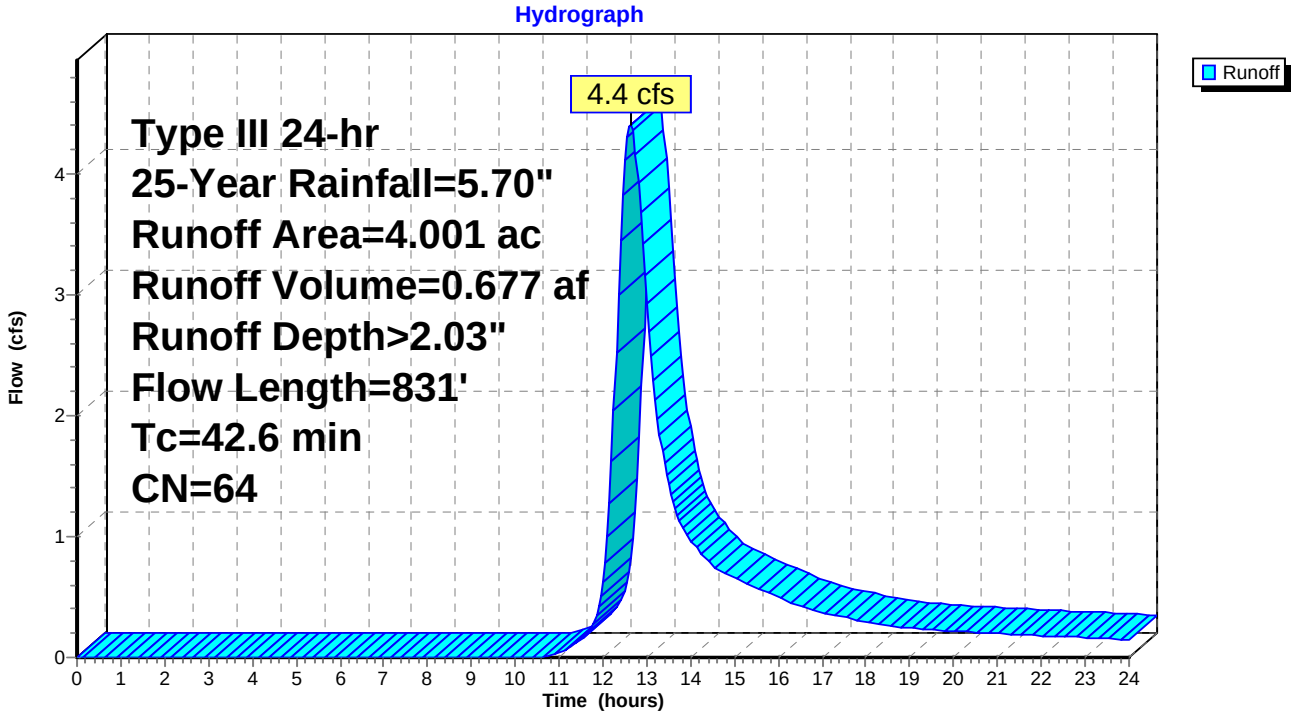
Runoff = 4.4 cfs @ 12.63 hrs, Volume= 0.677 af, Depth> 2.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.70"

Area (ac)	CN	Description
0.450	85	Gravel roads, HSG B
3.551	61	>75% Grass cover, Good, HSG B
4.001	64	Weighted Average
4.001		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.1	100	0.0090	0.09		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.40"
7.1	174	0.0034	0.41		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
16.3	526	0.0059	0.54		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
0.1	31	0.0742	4.39		**Shallow Concentrated Flow, Grass/Gravel** Unpaved Kv= 16.1 fps
42.6	831	Total			

Subcatchment 3S: Area 1 - East



Summary for Subcatchment 4S: Area 2 - West

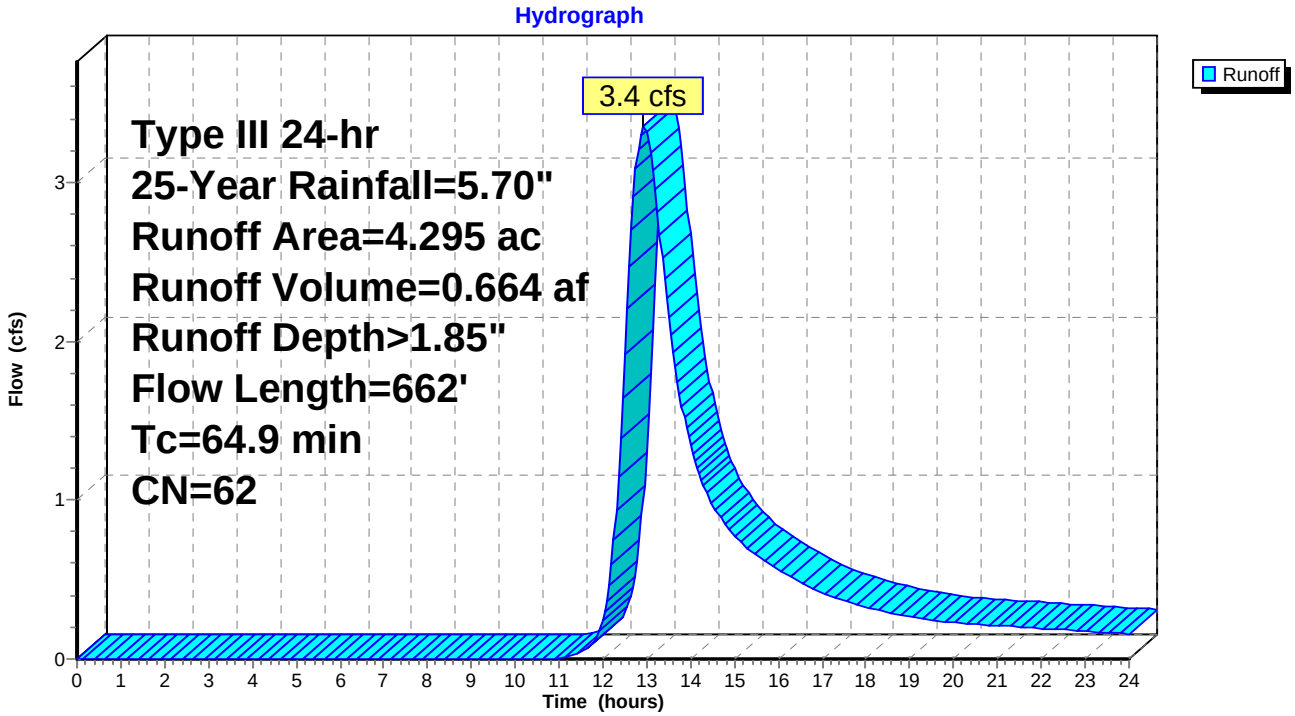
Runoff = 3.4 cfs @ 12.93 hrs, Volume= 0.664 af, Depth> 1.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.70"

Area (ac)	CN	Description
2.163	60	Woods, Fair, HSG B
1.790	61	>75% Grass cover, Good, HSG B
0.342	85	Gravel roads, HSG B
4.295	62	Weighted Average
4.295		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.1	100	0.0080	0.06		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.40"
1.9	86	0.0233	0.76		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
7.5	235	0.0055	0.52		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
25.4	241	0.0010	0.16		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
64.9	662	Total			

Subcatchment 4S: Area 2 - West



Summary for Subcatchment 5S: Area 2 - East

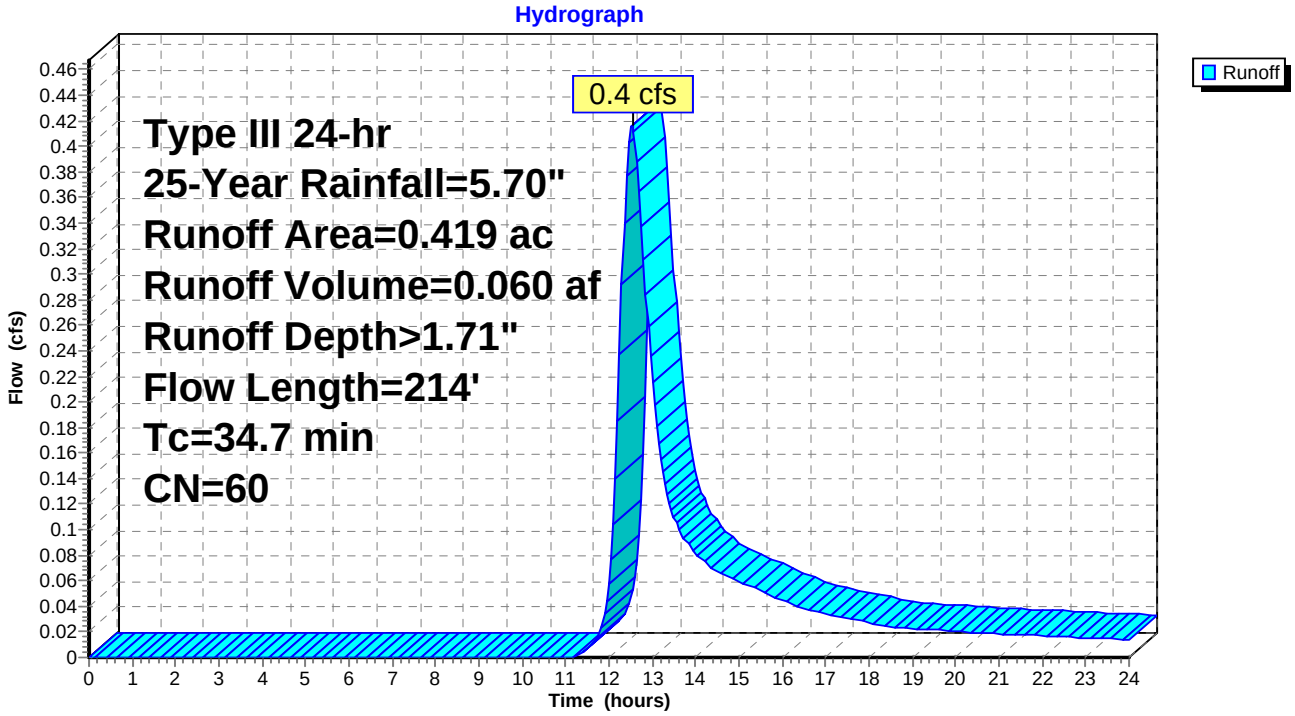
Runoff = 0.4 cfs @ 12.53 hrs, Volume= 0.060 af, Depth> 1.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.70"

Area (ac)	CN	Description
0.215	60	Woods, Fair, HSG B
0.204	61	>75% Grass cover, Good, HSG B
0.419	60	Weighted Average
0.419		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.2	58	0.0034	0.05		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.40"
12.8	42	0.0119	0.05		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.40"
2.8	86	0.0105	0.51		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
0.9	28	0.0050	0.49		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
34.7	214	Total			

Subcatchment 5S: Area 2 - East

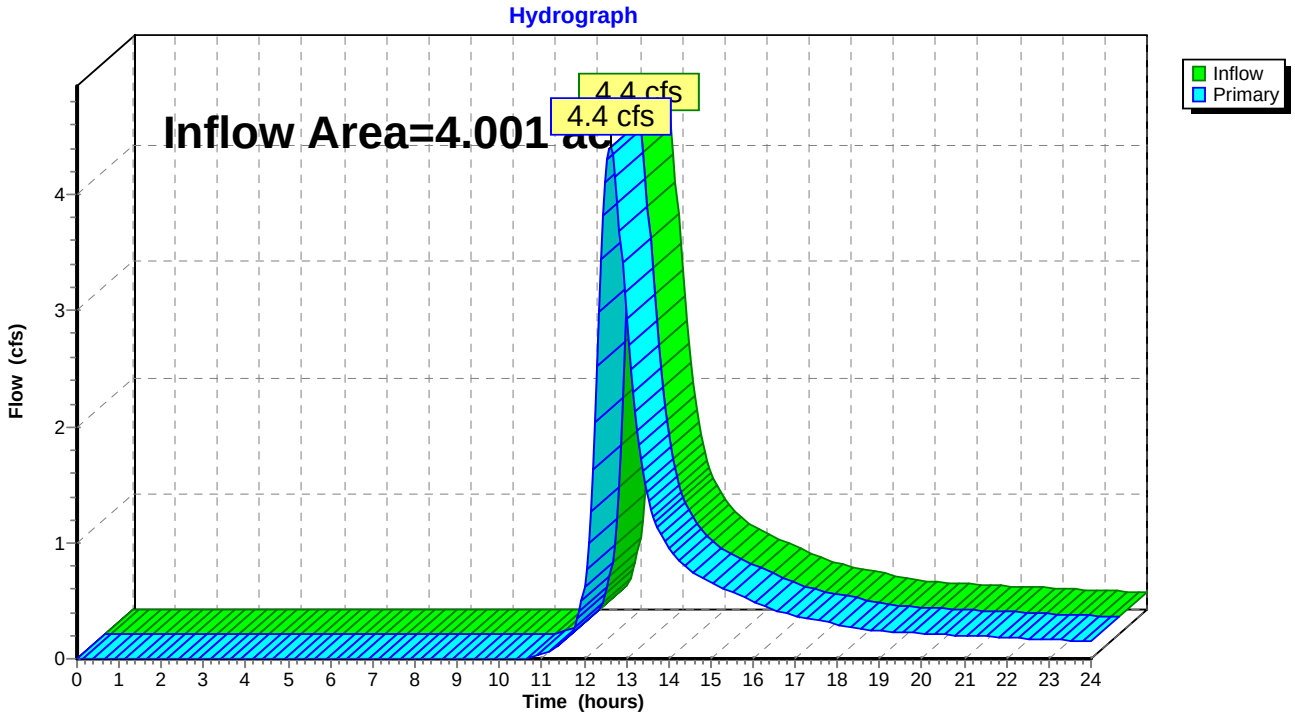


Summary for Link 4L: Wooded Area to East

Inflow Area = 4.001 ac, 0.00% Impervious, Inflow Depth > 2.03" for 25-Year event
Inflow = 4.4 cfs @ 12.63 hrs, Volume= 0.677 af
Primary = 4.4 cfs @ 12.63 hrs, Volume= 0.677 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 4L: Wooded Area to East

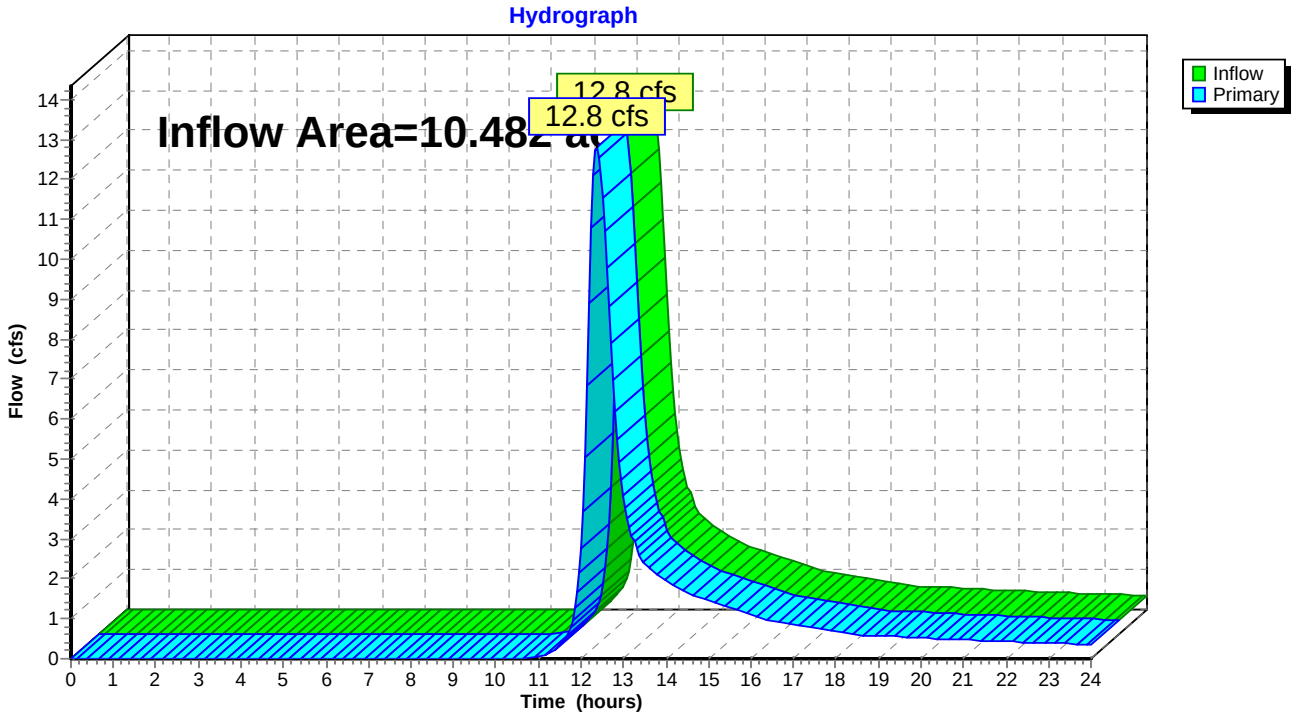


Summary for Link 6L: To Reservoir

Inflow Area = 10.482 ac, 0.00% Impervious, Inflow Depth > 1.80" for 25-Year event
Inflow = 12.8 cfs @ 12.38 hrs, Volume= 1.571 af
Primary = 12.8 cfs @ 12.38 hrs, Volume= 1.571 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 6L: To Reservoir

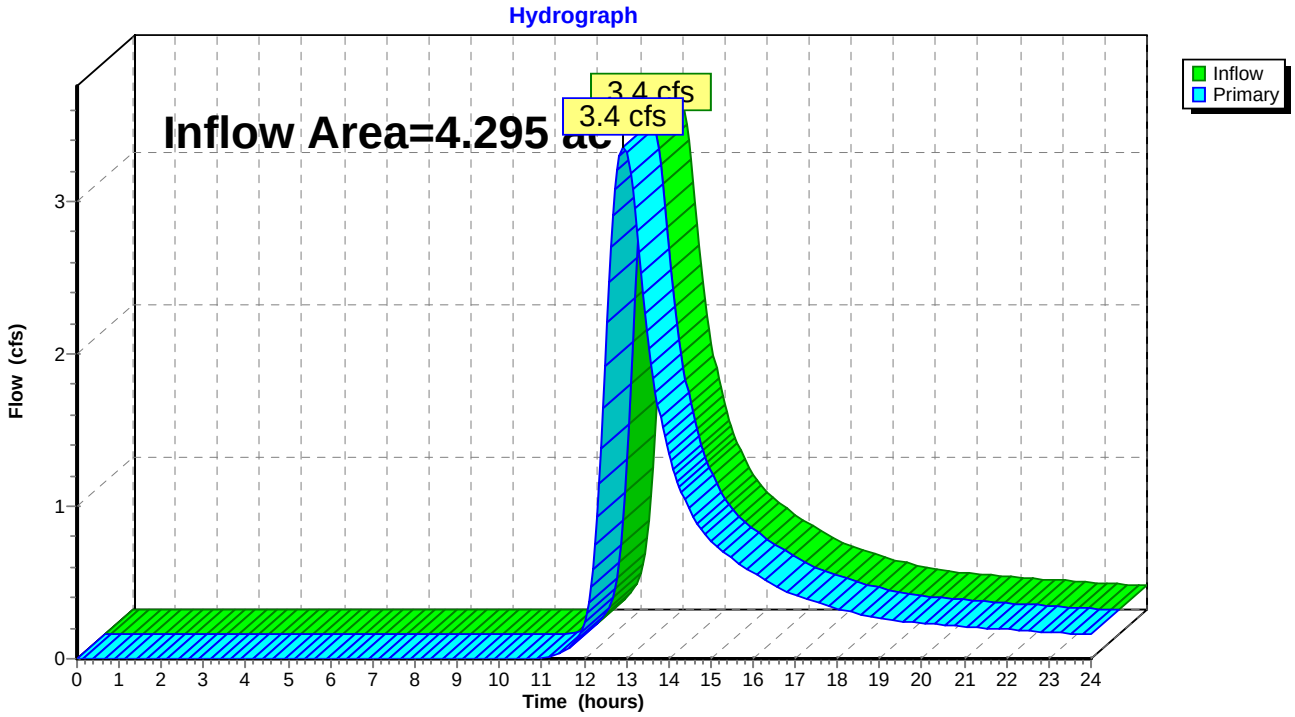


Summary for Link 7L: Off-Site Flow to South

Inflow Area = 4.295 ac, 0.00% Impervious, Inflow Depth > 1.85" for 25-Year event
Inflow = 3.4 cfs @ 12.93 hrs, Volume= 0.664 af
Primary = 3.4 cfs @ 12.93 hrs, Volume= 0.664 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 7L: Off-Site Flow to South

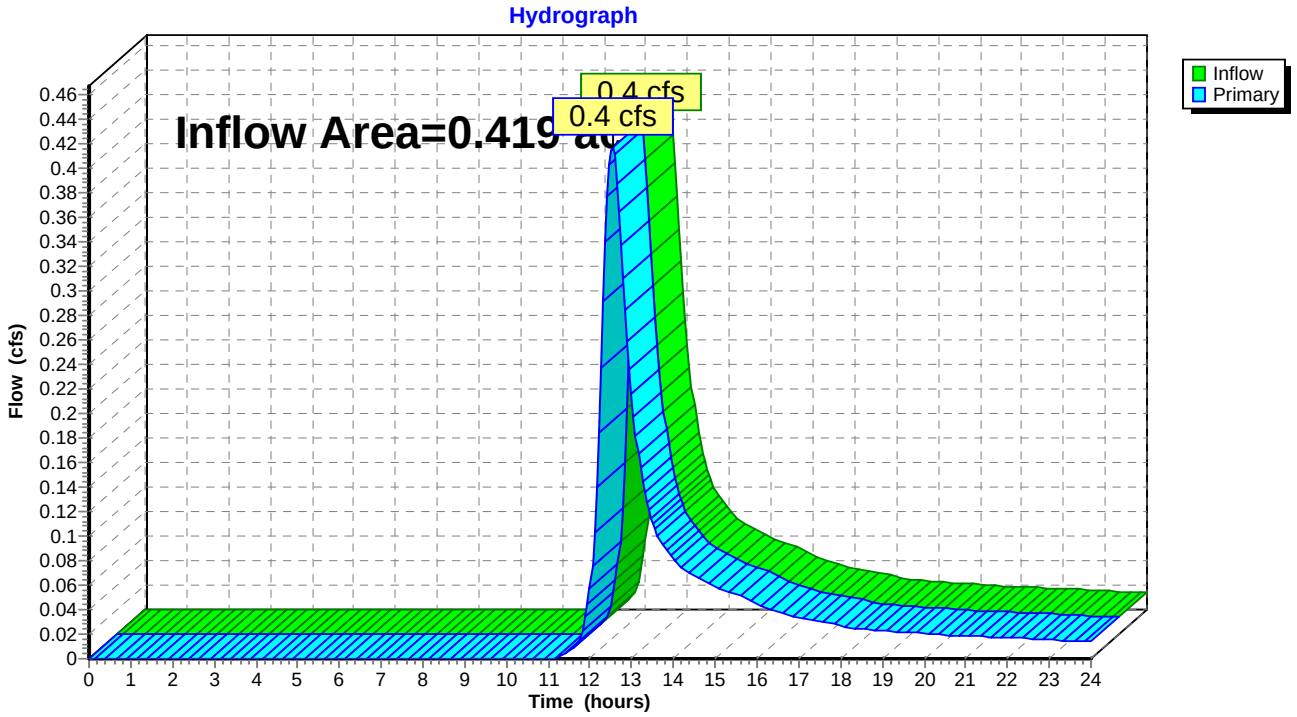


Summary for Link 8L: Off-Site Flow to East

Inflow Area = 0.419 ac, 0.00% Impervious, Inflow Depth > 1.71" for 25-Year event
Inflow = 0.4 cfs @ 12.53 hrs, Volume= 0.060 af
Primary = 0.4 cfs @ 12.53 hrs, Volume= 0.060 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 8L: Off-Site Flow to East



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Area 1 - North Runoff Area=5.074 ac 0.00% Impervious Runoff Depth>2.11"
Flow Length=596' Tc=25.2 min CN=60 Runoff=7.3 cfs 0.891 af

Subcatchment 2S: Area 1 - West Runoff Area=5.408 ac 0.00% Impervious Runoff Depth>2.28"
Flow Length=437' Tc=24.6 min CN=62 Runoff=8.7 cfs 1.030 af

Subcatchment 3S: Area 1 - East Runoff Area=4.001 ac 0.00% Impervious Runoff Depth>2.45"
Flow Length=831' Tc=42.6 min CN=64 Runoff=5.4 cfs 0.818 af

Subcatchment 4S: Area 2 - West Runoff Area=4.295 ac 0.00% Impervious Runoff Depth>2.26"
Flow Length=662' Tc=64.9 min CN=62 Runoff=4.2 cfs 0.808 af

Subcatchment 5S: Area 2 - East Runoff Area=0.419 ac 0.00% Impervious Runoff Depth>2.10"
Flow Length=214' Tc=34.7 min CN=60 Runoff=0.5 cfs 0.073 af

Link 4L: Wooded Area to East Inflow=5.4 cfs 0.818 af
Primary=5.4 cfs 0.818 af

Link 6L: To Reservoir Inflow=16.0 cfs 1.920 af
Primary=16.0 cfs 1.920 af

Link 7L: Off-Site Flow to South Inflow=4.2 cfs 0.808 af
Primary=4.2 cfs 0.808 af

Link 8L: Off-Site Flow to East Inflow=0.5 cfs 0.073 af
Primary=0.5 cfs 0.073 af

Total Runoff Area = 19.197 ac Runoff Volume = 3.620 af Average Runoff Depth = 2.26"
100.00% Pervious = 19.197 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1S: Area 1 - North

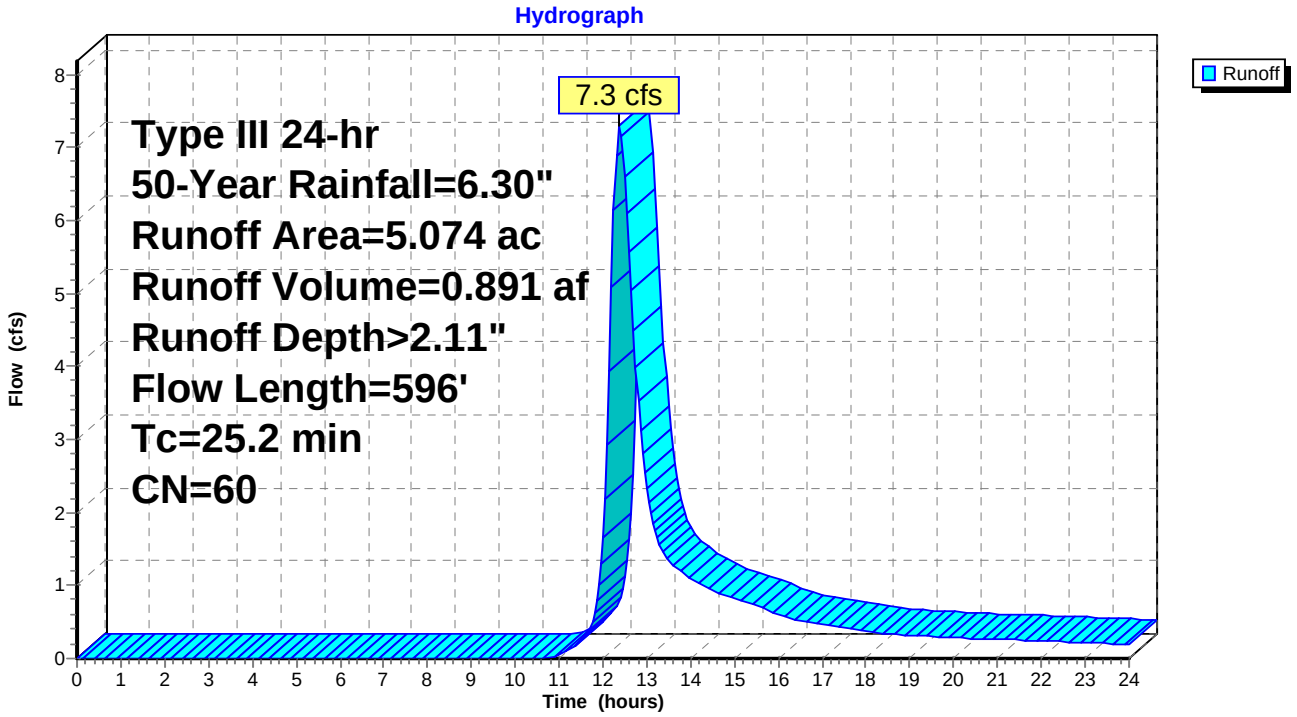
Runoff = 7.3 cfs @ 12.38 hrs, Volume= 0.891 af, Depth> 2.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year Rainfall=6.30"

Area (ac)	CN	Description
2.589	60	Woods, Fair, HSG B
2.485	61	>75% Grass cover, Good, HSG B
5.074	60	Weighted Average
5.074		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.5	100	0.0177	0.11		**Sheet Flow, Grass and Trees** Grass: Dense n= 0.240 P2= 3.40"
1.0	40	0.0085	0.65		**Shallow Concentrated Flow, Grass and Trees** Short Grass Pasture Kv= 7.0 fps
0.3	32	0.0625	1.75		**Shallow Concentrated Flow, Grass and Trees** Short Grass Pasture Kv= 7.0 fps
2.9	143	0.0140	0.83		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
5.2	211	0.0095	0.68		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
1.3	70	0.0323	0.90		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
25.2	596	Total			

Subcatchment 1S: Area 1 - North



Summary for Subcatchment 2S: Area 1 - West

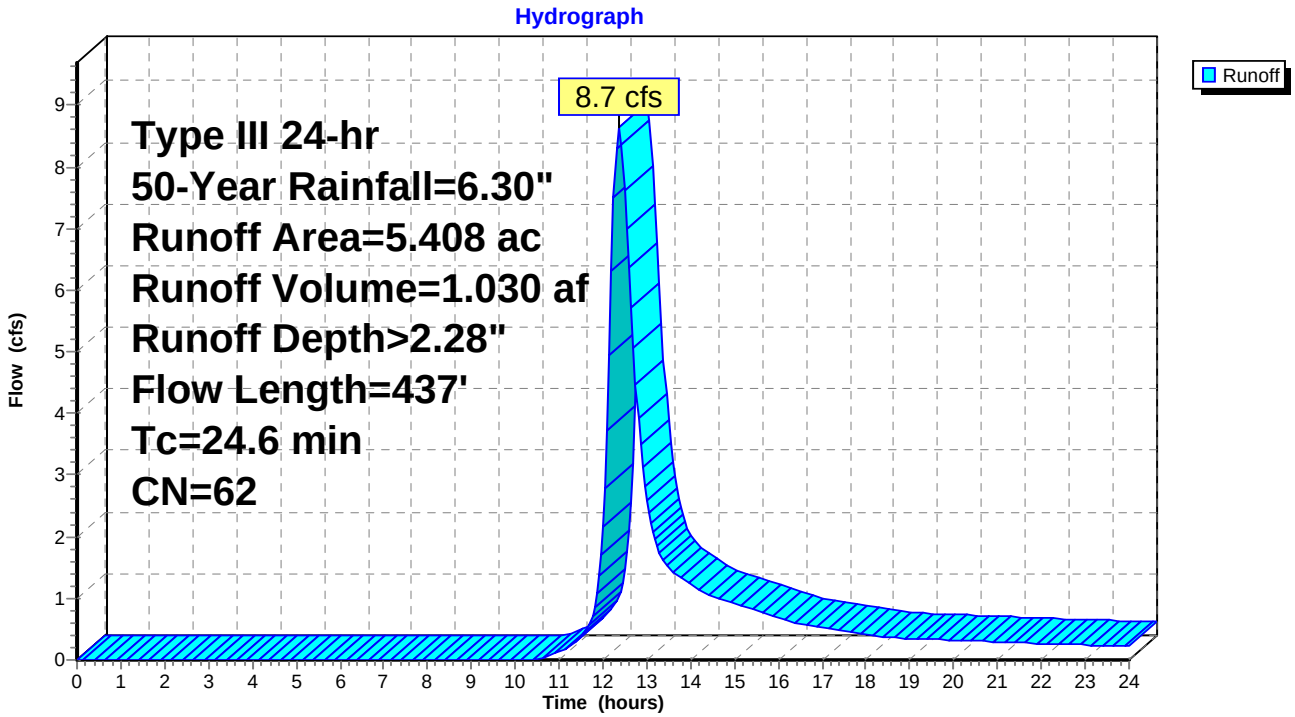
Runoff = 8.7 cfs @ 12.37 hrs, Volume= 1.030 af, Depth> 2.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year Rainfall=6.30"

Area (ac)	CN	Description
5.144	61	>75% Grass cover, Good, HSG B
0.068	60	Woods, Fair, HSG B
0.196	85	Gravel roads, HSG B
5.408	62	Weighted Average
5.408		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.0	100	0.0120	0.10		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.40"
7.5	312	0.0099	0.70		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
0.1	25	0.1581	2.78		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
24.6	437	Total			

Subcatchment 2S: Area 1 - West



Summary for Subcatchment 3S: Area 1 - East

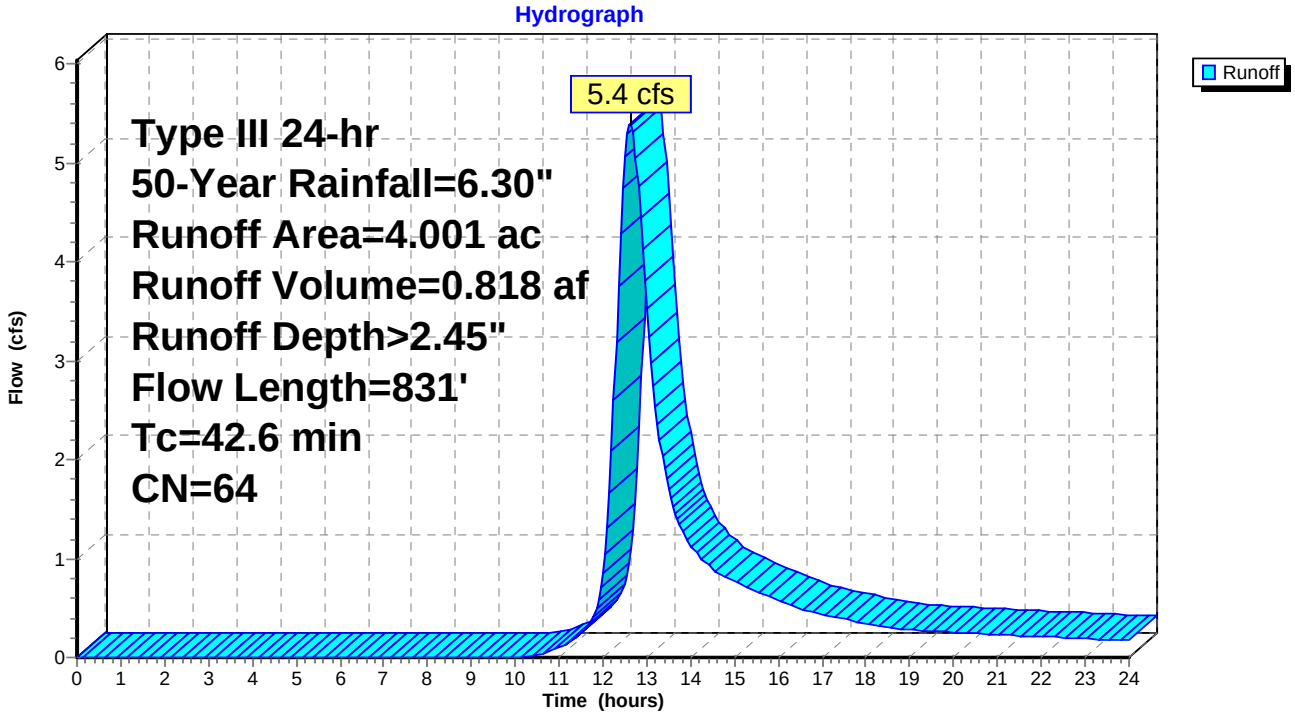
Runoff = 5.4 cfs @ 12.62 hrs, Volume= 0.818 af, Depth> 2.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year Rainfall=6.30"

Area (ac)	CN	Description
0.450	85	Gravel roads, HSG B
3.551	61	>75% Grass cover, Good, HSG B
4.001	64	Weighted Average
4.001		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.1	100	0.0090	0.09		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.40"
7.1	174	0.0034	0.41		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
16.3	526	0.0059	0.54		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
0.1	31	0.0742	4.39		**Shallow Concentrated Flow, Grass/Gravel** Unpaved Kv= 16.1 fps
42.6	831	Total			

Subcatchment 3S: Area 1 - East



Summary for Subcatchment 4S: Area 2 - West

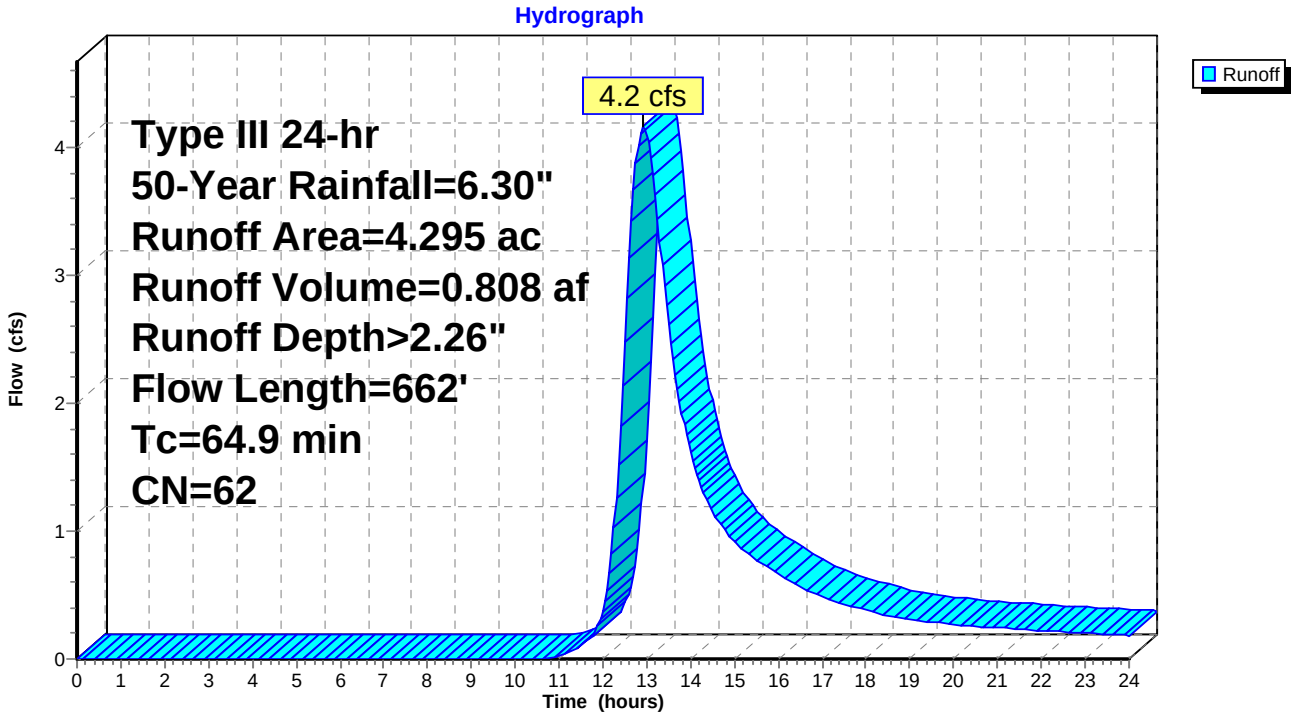
Runoff = 4.2 cfs @ 12.92 hrs, Volume= 0.808 af, Depth> 2.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year Rainfall=6.30"

Area (ac)	CN	Description
2.163	60	Woods, Fair, HSG B
1.790	61	>75% Grass cover, Good, HSG B
0.342	85	Gravel roads, HSG B
4.295	62	Weighted Average
4.295		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.1	100	0.0080	0.06		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.40"
1.9	86	0.0233	0.76		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
7.5	235	0.0055	0.52		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
25.4	241	0.0010	0.16		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
64.9	662	Total			

Subcatchment 4S: Area 2 - West



Summary for Subcatchment 5S: Area 2 - East

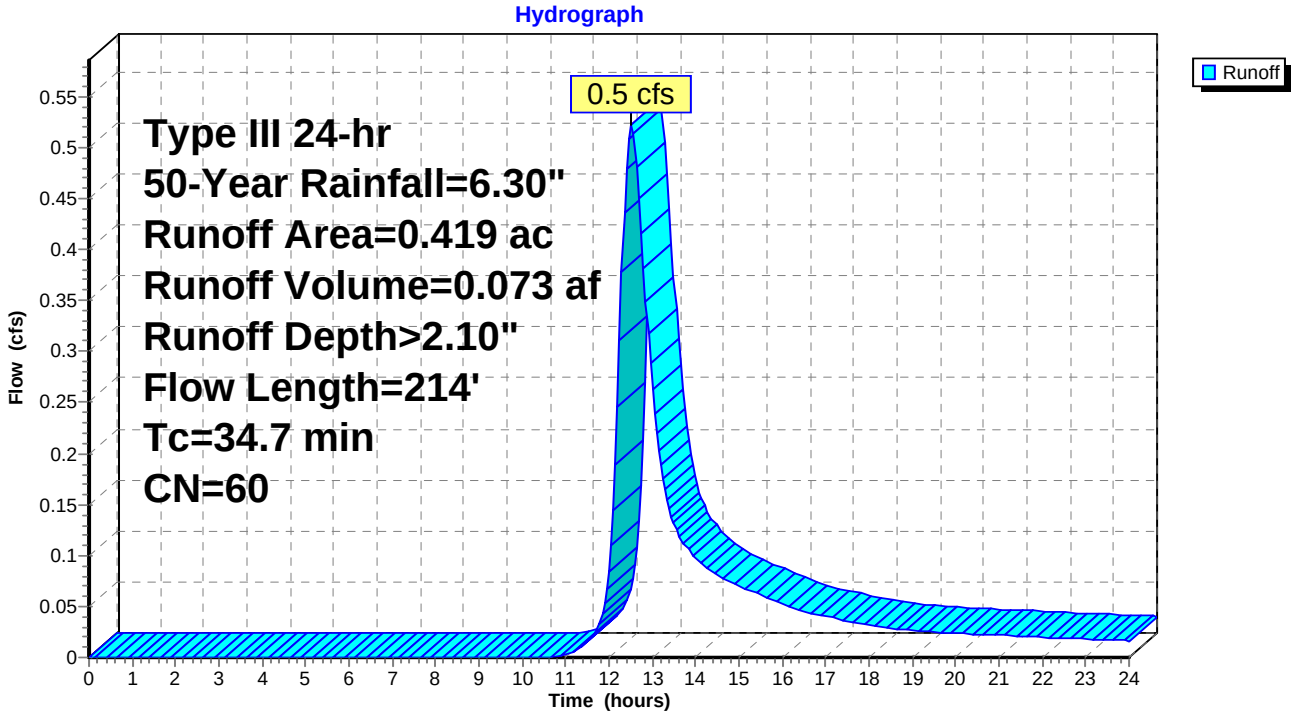
Runoff = 0.5 cfs @ 12.52 hrs, Volume= 0.073 af, Depth> 2.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year Rainfall=6.30"

Area (ac)	CN	Description
0.215	60	Woods, Fair, HSG B
0.204	61	>75% Grass cover, Good, HSG B
0.419	60	Weighted Average
0.419		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.2	58	0.0034	0.05		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.40"
12.8	42	0.0119	0.05		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.40"
2.8	86	0.0105	0.51		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
0.9	28	0.0050	0.49		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
34.7	214	Total			

Subcatchment 5S: Area 2 - East

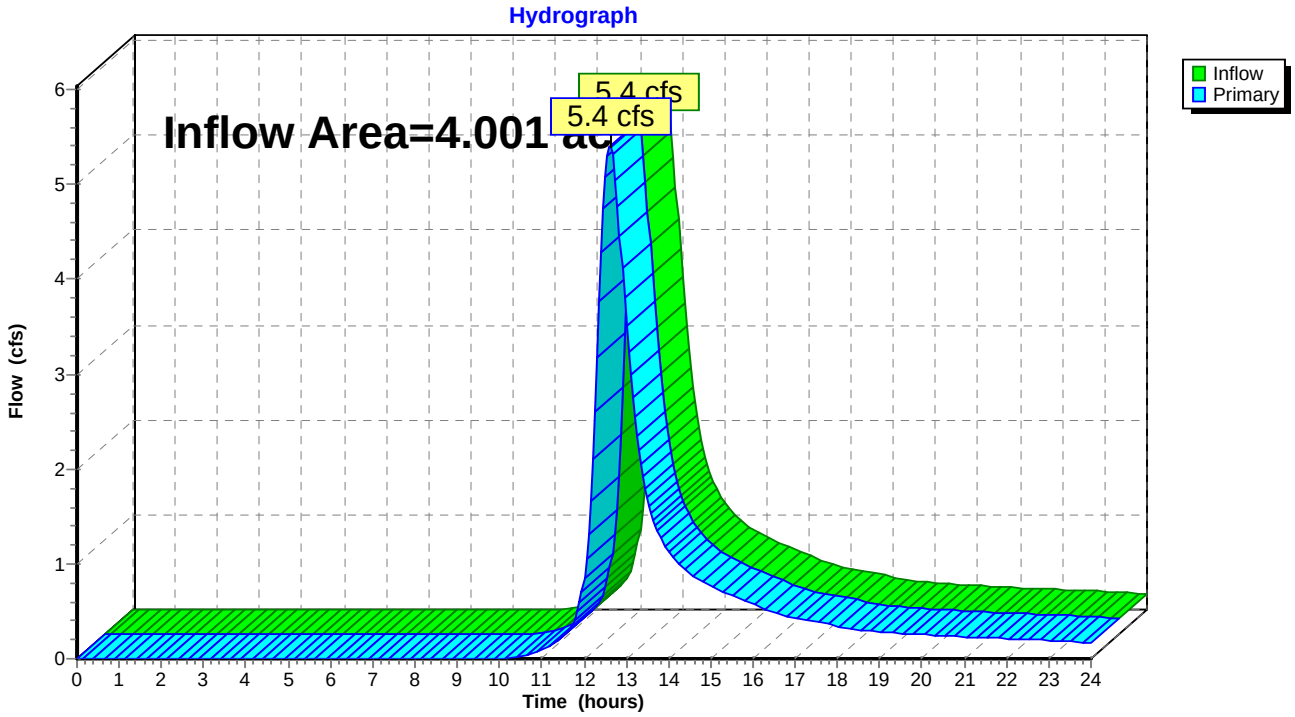


Summary for Link 4L: Wooded Area to East

Inflow Area = 4.001 ac, 0.00% Impervious, Inflow Depth > 2.45" for 50-Year event
Inflow = 5.4 cfs @ 12.62 hrs, Volume= 0.818 af
Primary = 5.4 cfs @ 12.62 hrs, Volume= 0.818 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 4L: Wooded Area to East

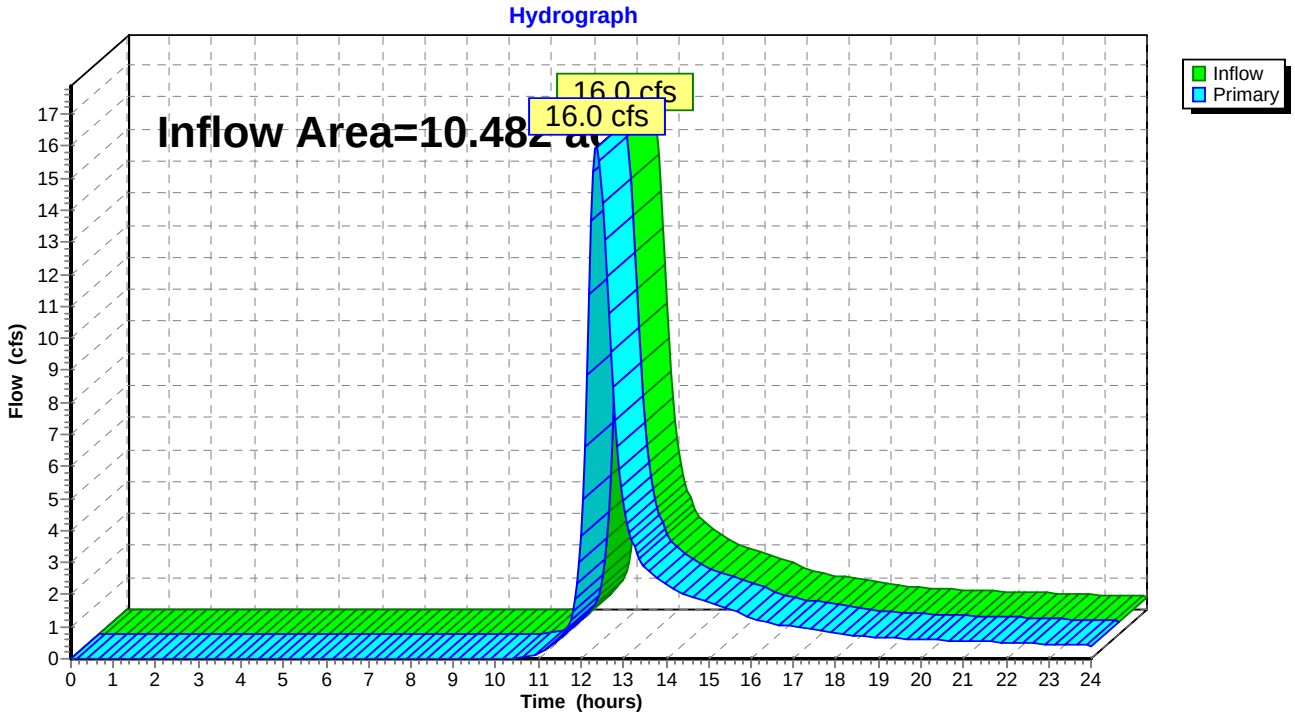


Summary for Link 6L: To Reservoir

Inflow Area = 10.482 ac, 0.00% Impervious, Inflow Depth > 2.20" for 50-Year event
Inflow = 16.0 cfs @ 12.37 hrs, Volume= 1.920 af
Primary = 16.0 cfs @ 12.37 hrs, Volume= 1.920 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 6L: To Reservoir

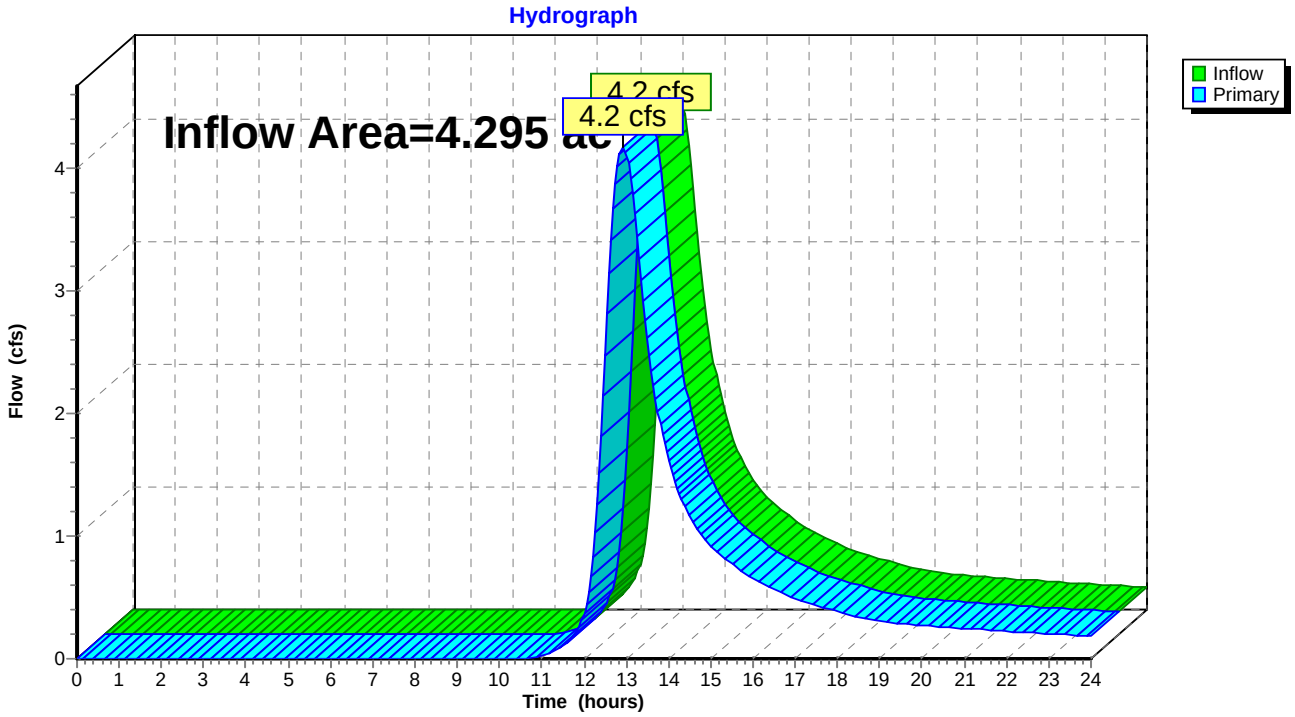


Summary for Link 7L: Off-Site Flow to South

Inflow Area = 4.295 ac, 0.00% Impervious, Inflow Depth > 2.26" for 50-Year event
Inflow = 4.2 cfs @ 12.92 hrs, Volume= 0.808 af
Primary = 4.2 cfs @ 12.92 hrs, Volume= 0.808 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 7L: Off-Site Flow to South

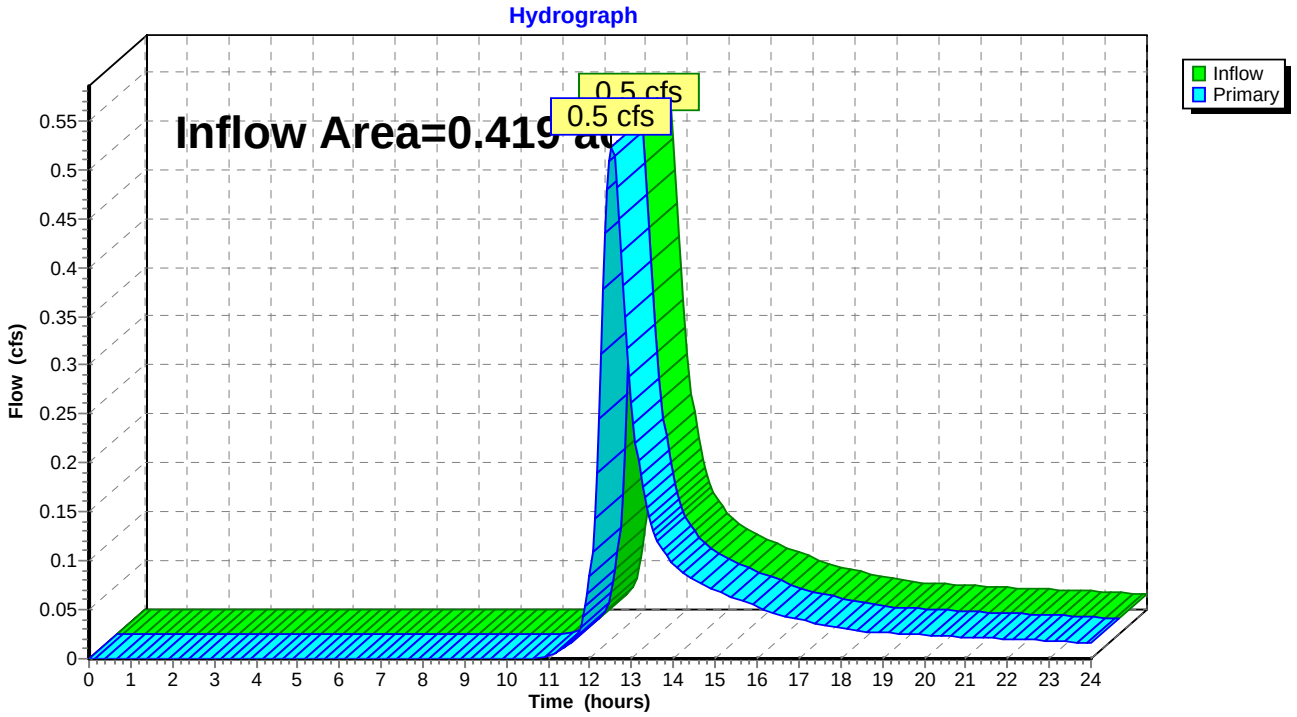


Summary for Link 8L: Off-Site Flow to East

Inflow Area = 0.419 ac, 0.00% Impervious, Inflow Depth > 2.10" for 50-Year event
Inflow = 0.5 cfs @ 12.52 hrs, Volume= 0.073 af
Primary = 0.5 cfs @ 12.52 hrs, Volume= 0.073 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 8L: Off-Site Flow to East



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Area 1 - North Runoff Area=5.074 ac 0.00% Impervious Runoff Depth>2.66"
Flow Length=596' Tc=25.2 min CN=60 Runoff=9.4 cfs 1.124 af

Subcatchment 2S: Area 1 - West Runoff Area=5.408 ac 0.00% Impervious Runoff Depth>2.86"
Flow Length=437' Tc=24.6 min CN=62 Runoff=11.0 cfs 1.288 af

Subcatchment 3S: Area 1 - East Runoff Area=4.001 ac 0.00% Impervious Runoff Depth>3.05"
Flow Length=831' Tc=42.6 min CN=64 Runoff=6.8 cfs 1.016 af

Subcatchment 4S: Area 2 - West Runoff Area=4.295 ac 0.00% Impervious Runoff Depth>2.83"
Flow Length=662' Tc=64.9 min CN=62 Runoff=5.3 cfs 1.012 af

Subcatchment 5S: Area 2 - East Runoff Area=0.419 ac 0.00% Impervious Runoff Depth>2.65"
Flow Length=214' Tc=34.7 min CN=60 Runoff=0.7 cfs 0.093 af

Link 4L: Wooded Area to East Inflow=6.8 cfs 1.016 af
Primary=6.8 cfs 1.016 af

Link 6L: To Reservoir Inflow=20.4 cfs 2.412 af
Primary=20.4 cfs 2.412 af

Link 7L: Off-Site Flow to South Inflow=5.3 cfs 1.012 af
Primary=5.3 cfs 1.012 af

Link 8L: Off-Site Flow to East Inflow=0.7 cfs 0.093 af
Primary=0.7 cfs 0.093 af

Total Runoff Area = 19.197 ac Runoff Volume = 4.533 af Average Runoff Depth = 2.83"
100.00% Pervious = 19.197 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1S: Area 1 - North

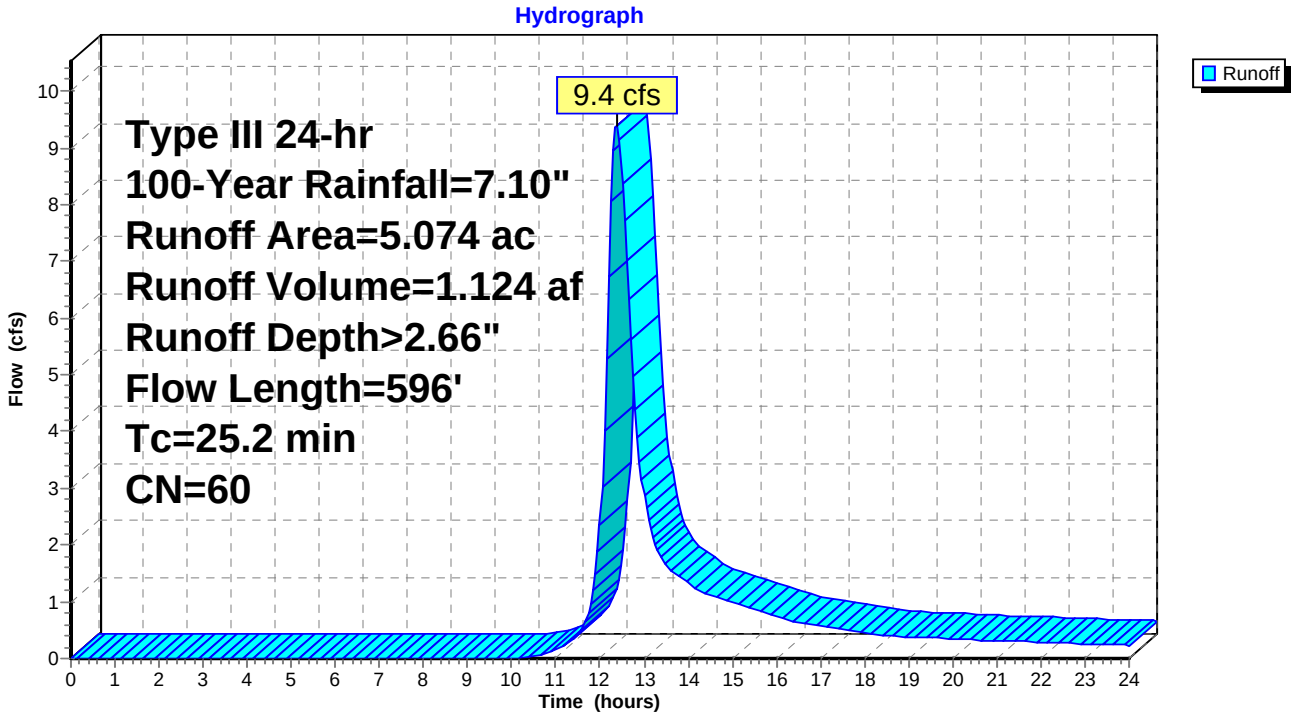
Runoff = 9.4 cfs @ 12.37 hrs, Volume= 1.124 af, Depth> 2.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.10"

Area (ac)	CN	Description
2.589	60	Woods, Fair, HSG B
2.485	61	>75% Grass cover, Good, HSG B
5.074	60	Weighted Average
5.074		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.5	100	0.0177	0.11		**Sheet Flow, Grass and Trees** Grass: Dense n= 0.240 P2= 3.40"
1.0	40	0.0085	0.65		**Shallow Concentrated Flow, Grass and Trees** Short Grass Pasture Kv= 7.0 fps
0.3	32	0.0625	1.75		**Shallow Concentrated Flow, Grass and Trees** Short Grass Pasture Kv= 7.0 fps
2.9	143	0.0140	0.83		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
5.2	211	0.0095	0.68		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
1.3	70	0.0323	0.90		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
25.2	596	Total			

Subcatchment 1S: Area 1 - North



Summary for Subcatchment 2S: Area 1 - West

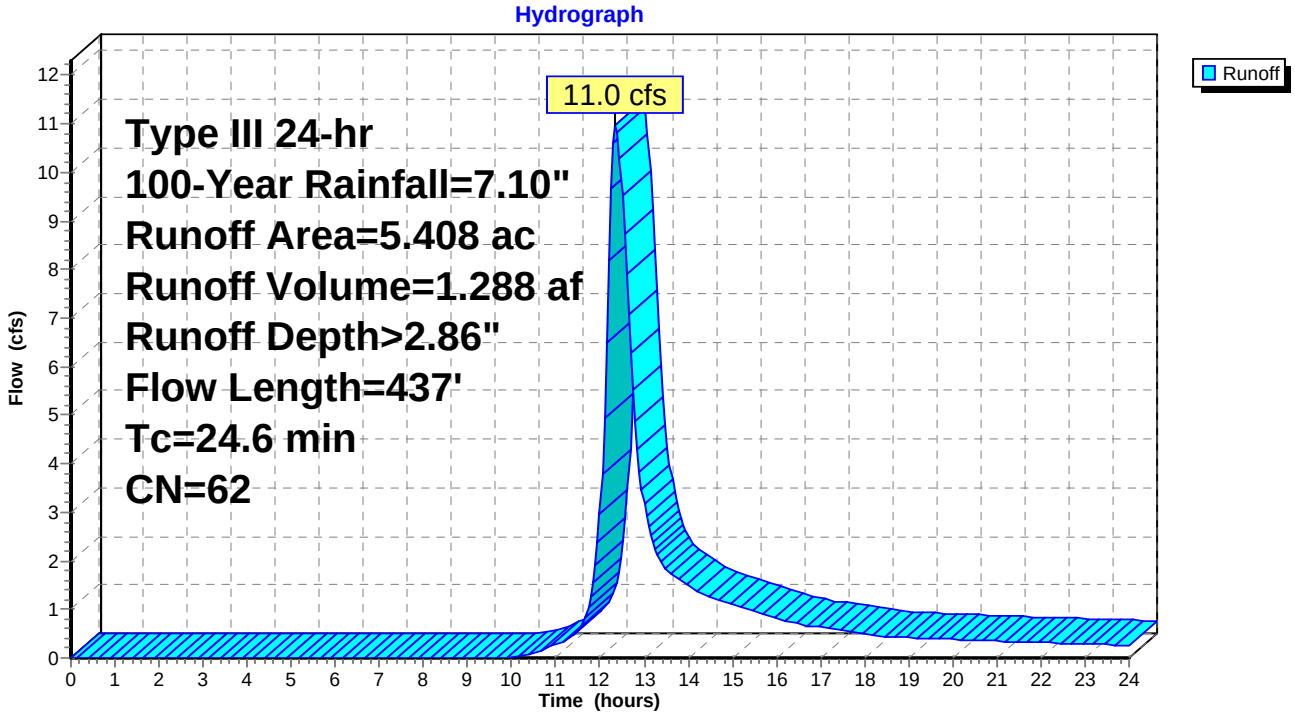
Runoff = 11.0 cfs @ 12.36 hrs, Volume= 1.288 af, Depth> 2.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.10"

Area (ac)	CN	Description
5.144	61	>75% Grass cover, Good, HSG B
0.068	60	Woods, Fair, HSG B
0.196	85	Gravel roads, HSG B
5.408	62	Weighted Average
5.408		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.0	100	0.0120	0.10		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.40"
7.5	312	0.0099	0.70		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
0.1	25	0.1581	2.78		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
24.6	437	Total			

Subcatchment 2S: Area 1 - West



Summary for Subcatchment 3S: Area 1 - East

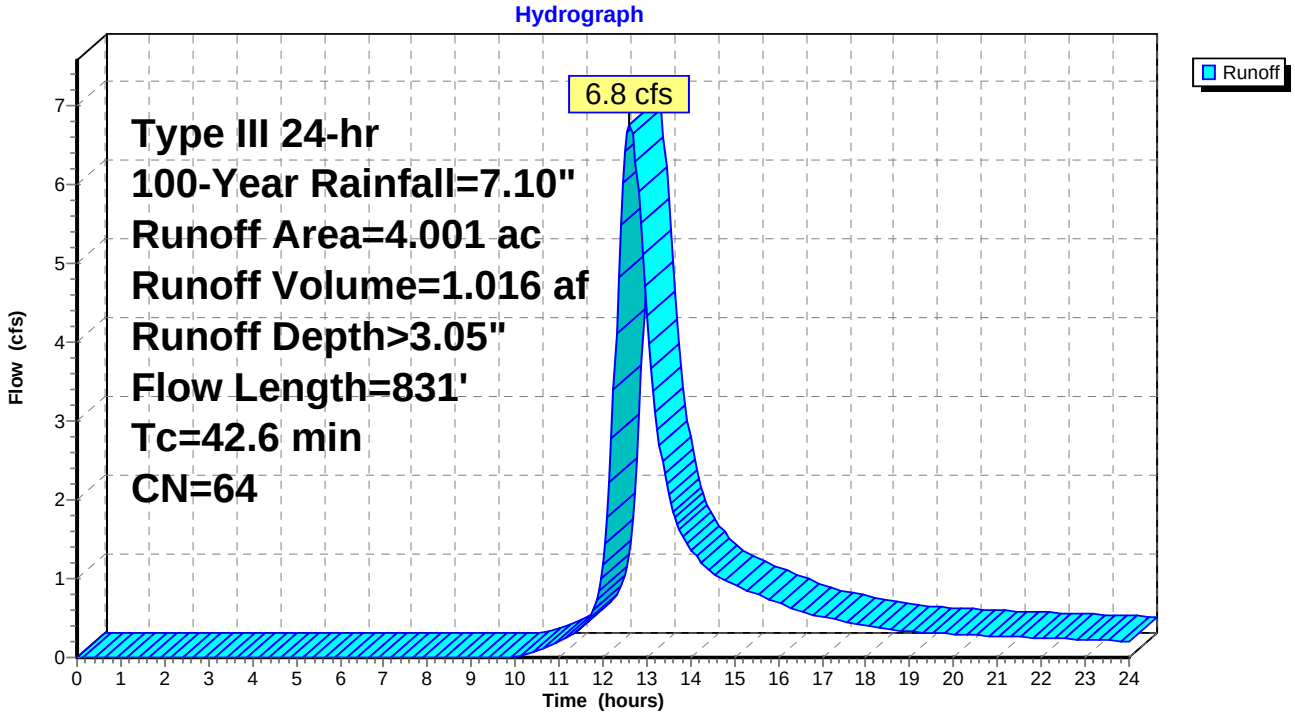
Runoff = 6.8 cfs @ 12.61 hrs, Volume= 1.016 af, Depth> 3.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.10"

Area (ac)	CN	Description
0.450	85	Gravel roads, HSG B
3.551	61	>75% Grass cover, Good, HSG B
4.001	64	Weighted Average
4.001		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.1	100	0.0090	0.09		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.40"
7.1	174	0.0034	0.41		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
16.3	526	0.0059	0.54		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
0.1	31	0.0742	4.39		**Shallow Concentrated Flow, Grass/Gravel** Unpaved Kv= 16.1 fps
42.6	831	Total			

Subcatchment 3S: Area 1 - East



Summary for Subcatchment 4S: Area 2 - West

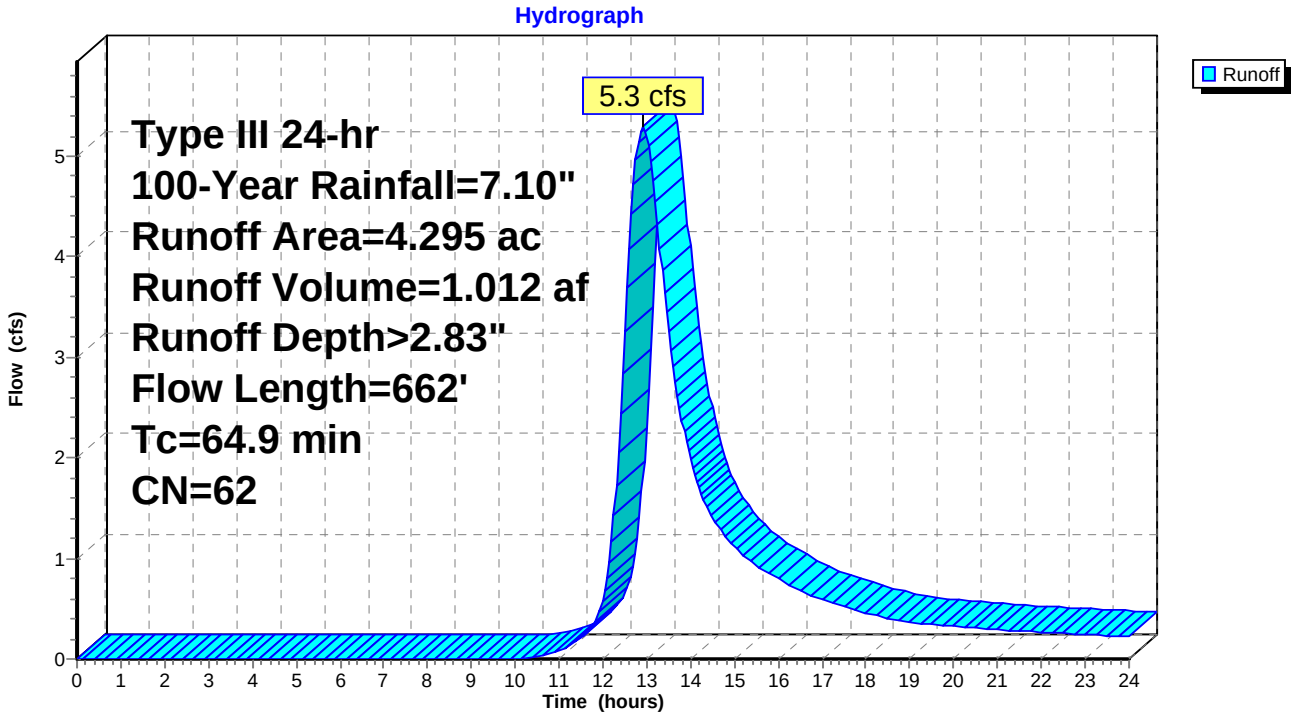
Runoff = 5.3 cfs @ 12.91 hrs, Volume= 1.012 af, Depth> 2.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.10"

Area (ac)	CN	Description
2.163	60	Woods, Fair, HSG B
1.790	61	>75% Grass cover, Good, HSG B
0.342	85	Gravel roads, HSG B
4.295	62	Weighted Average
4.295		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.1	100	0.0080	0.06		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.40"
1.9	86	0.0233	0.76		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
7.5	235	0.0055	0.52		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
25.4	241	0.0010	0.16		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
64.9	662	Total			

Subcatchment 4S: Area 2 - West



Summary for Subcatchment 5S: Area 2 - East

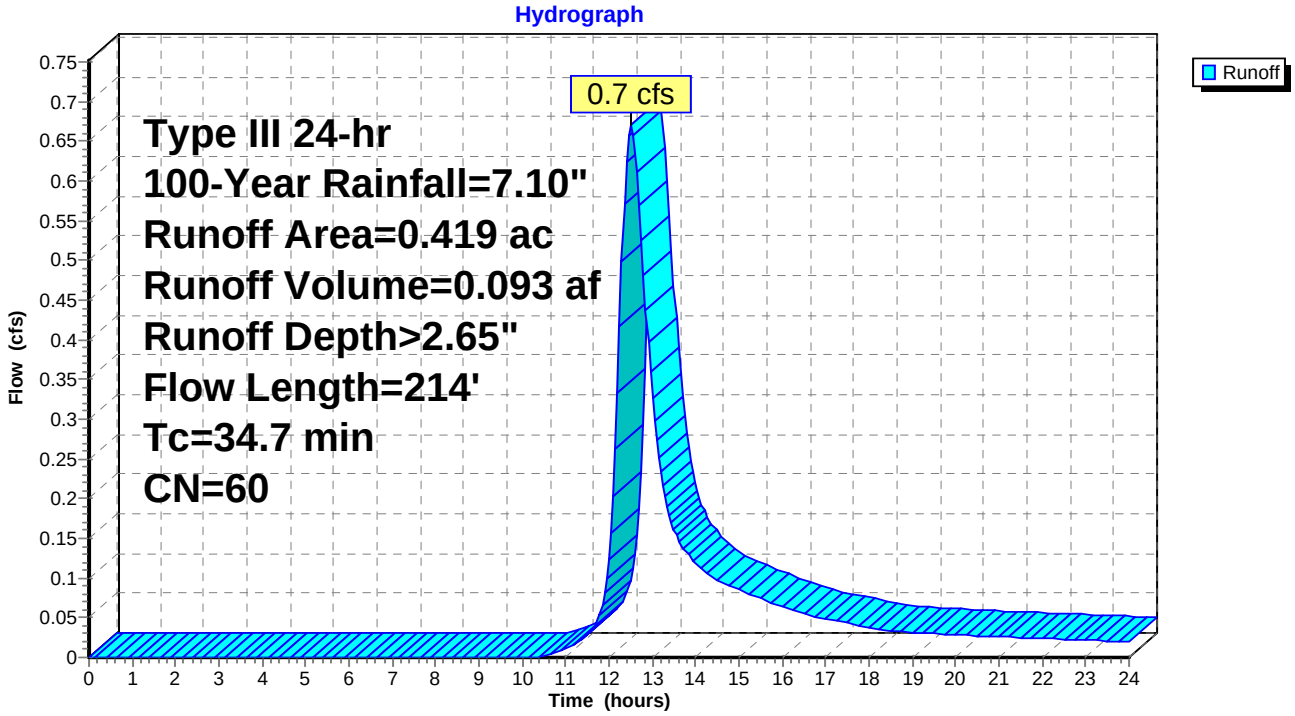
Runoff = 0.7 cfs @ 12.51 hrs, Volume= 0.093 af, Depth> 2.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.10"

Area (ac)	CN	Description
0.215	60	Woods, Fair, HSG B
0.204	61	>75% Grass cover, Good, HSG B
0.419	60	Weighted Average
0.419		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.2	58	0.0034	0.05		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.40"
12.8	42	0.0119	0.05		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.40"
2.8	86	0.0105	0.51		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
0.9	28	0.0050	0.49		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
34.7	214	Total			

Subcatchment 5S: Area 2 - East

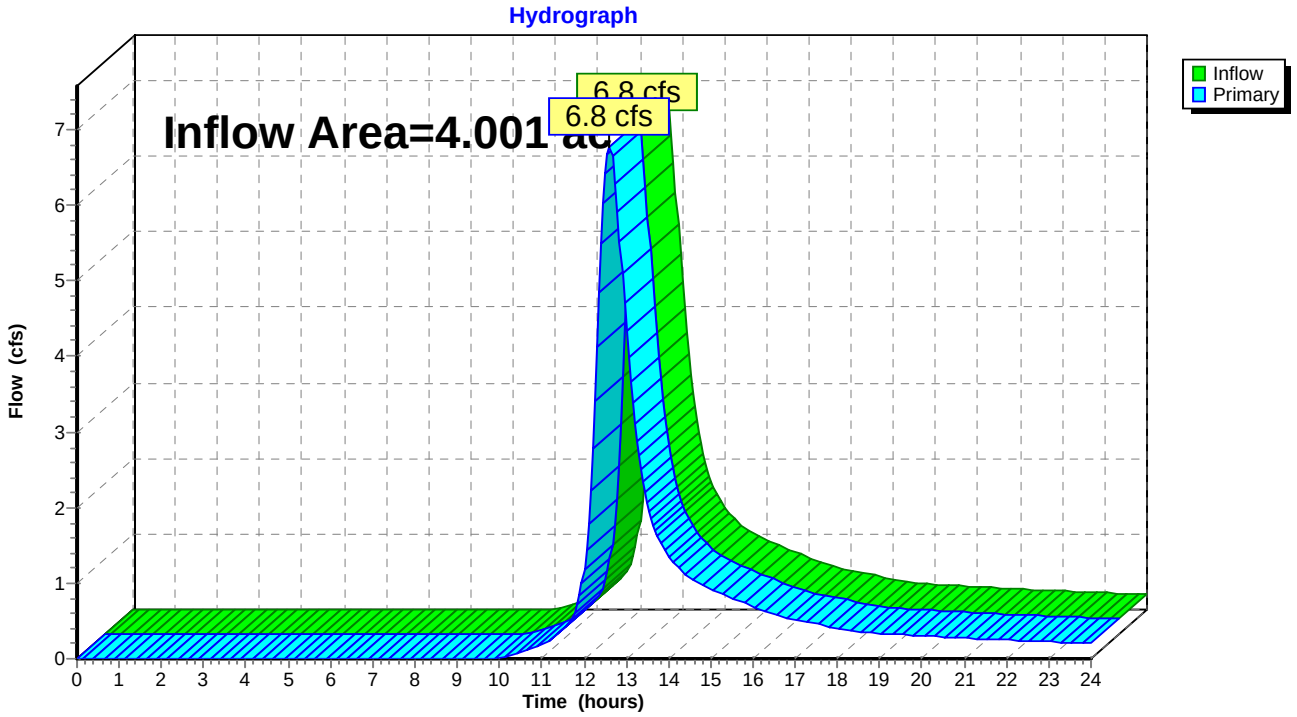


Summary for Link 4L: Wooded Area to East

Inflow Area = 4.001 ac, 0.00% Impervious, Inflow Depth > 3.05" for 100-Year event
Inflow = 6.8 cfs @ 12.61 hrs, Volume= 1.016 af
Primary = 6.8 cfs @ 12.61 hrs, Volume= 1.016 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 4L: Wooded Area to East

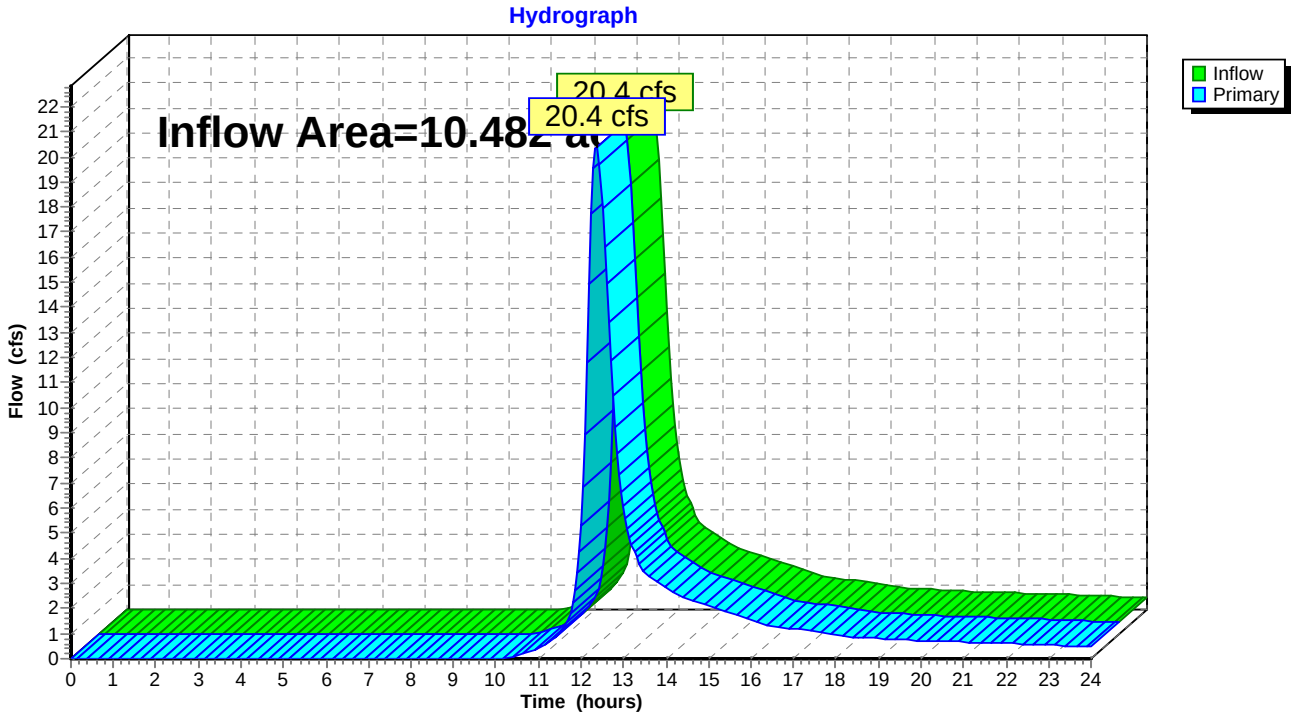


Summary for Link 6L: To Reservoir

Inflow Area = 10.482 ac, 0.00% Impervious, Inflow Depth > 2.76" for 100-Year event
Inflow = 20.4 cfs @ 12.37 hrs, Volume= 2.412 af
Primary = 20.4 cfs @ 12.37 hrs, Volume= 2.412 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 6L: To Reservoir

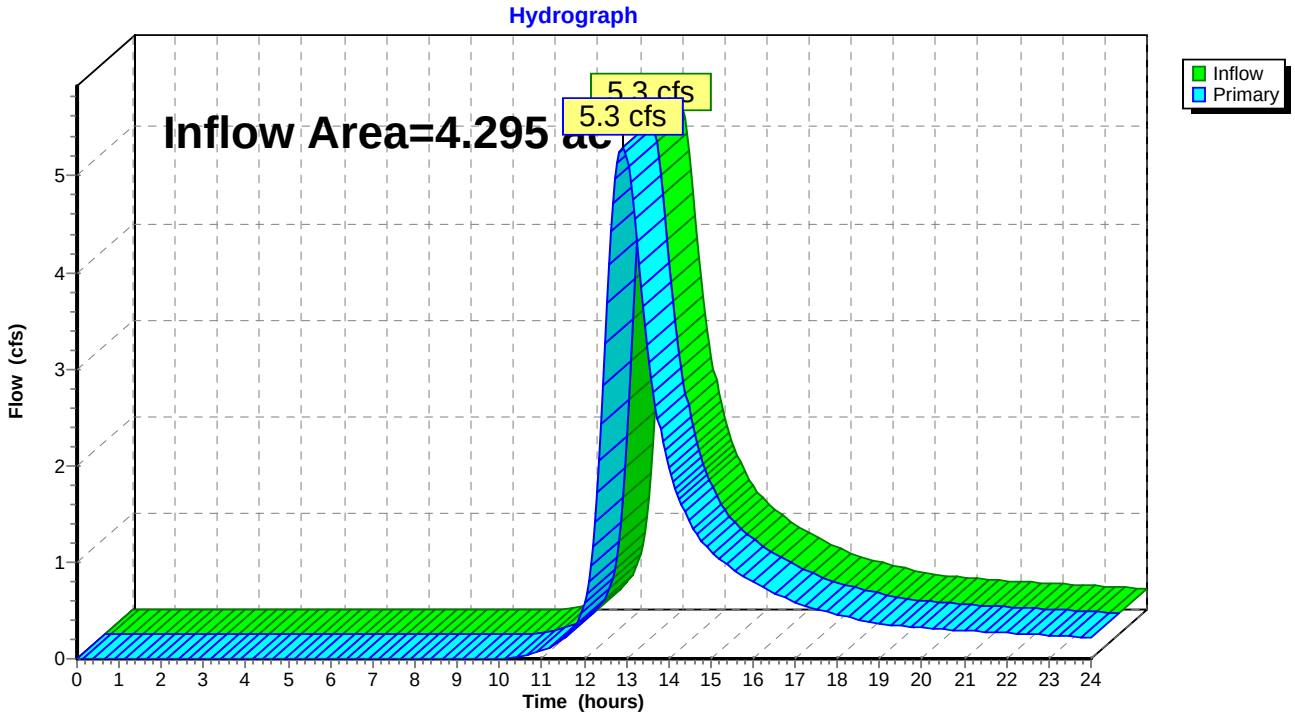


Summary for Link 7L: Off-Site Flow to South

Inflow Area = 4.295 ac, 0.00% Impervious, Inflow Depth > 2.83" for 100-Year event
Inflow = 5.3 cfs @ 12.91 hrs, Volume= 1.012 af
Primary = 5.3 cfs @ 12.91 hrs, Volume= 1.012 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 7L: Off-Site Flow to South

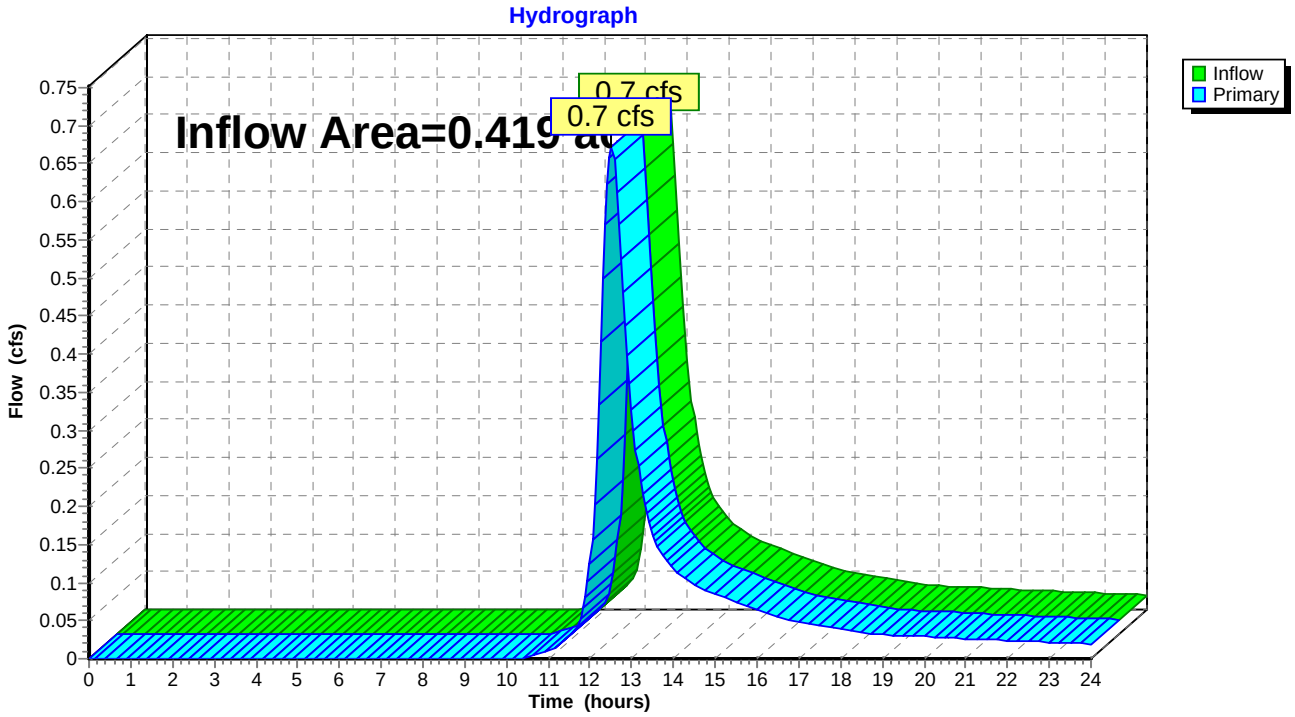


Summary for Link 8L: Off-Site Flow to East

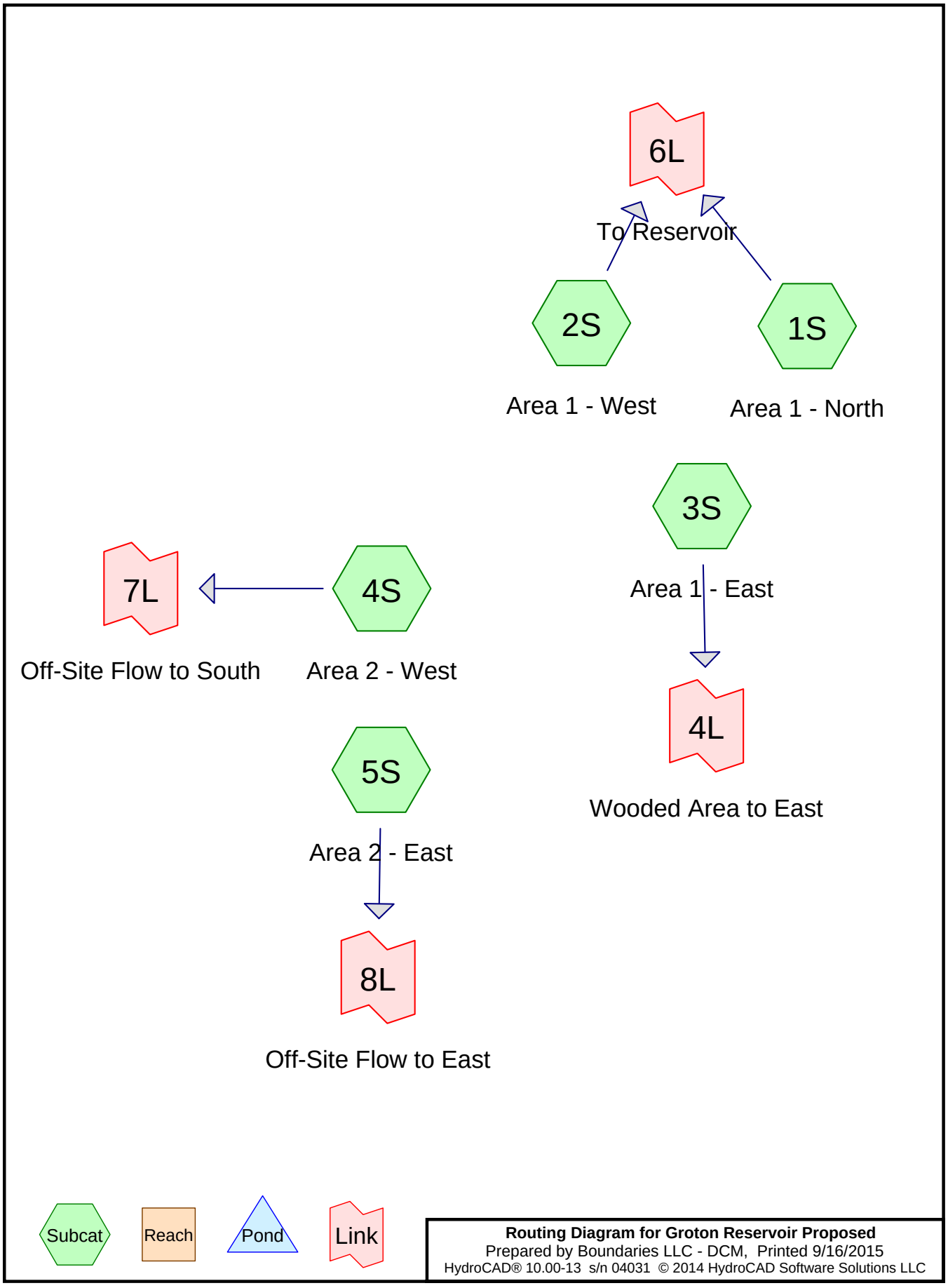
Inflow Area = 0.419 ac, 0.00% Impervious, Inflow Depth > 2.65" for 100-Year event
Inflow = 0.7 cfs @ 12.51 hrs, Volume= 0.093 af
Primary = 0.7 cfs @ 12.51 hrs, Volume= 0.093 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 8L: Off-Site Flow to East



Proposed Conditions Results



Routing Diagram for Groton Reservoir Proposed
Prepared by Boundaries LLC - DCM, Printed 9/16/2015

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
16.544	61	>75% Grass cover, Solar Array Area, HSG B (1S, 2S, 3S, 4S, 5S)
0.028	98	Concrete Equipment Pad, HSG B (2S, 4S)
0.018	98	Concrete Equipment Pads, HSG B (3S)
0.988	85	Gravel roads, HSG B (2S, 3S, 4S)
0.000	98	Solar Array Posts, HSG B (1S)
0.000	98	Solar Array Racking Posts, HSG B (2S, 3S, 4S, 5S)
1.618	60	Woods, Fair, HSG B (1S, 4S)
19.197	**62**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
19.197	HSG B	1S, 2S, 3S, 4S, 5S
0.000	HSG C	
0.000	HSG D	
0.000	Other	
19.197		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchme Numbers
0.000	16.544	0.000	0.000	0.000	16.544	>75% Grass cover, Solar Array Area	
0.000	0.028	0.000	0.000	0.000	0.028	Concrete Equipment Pad	
0.000	0.018	0.000	0.000	0.000	0.018	Concrete Equipment Pads	
0.000	0.988	0.000	0.000	0.000	0.988	Gravel roads	
0.000	0.000	0.000	0.000	0.000	0.000	Solar Array Posts	
0.000	0.000	0.000	0.000	0.000	0.000	Solar Array Racking Posts	
0.000	1.618	0.000	0.000	0.000	1.618	Woods, Fair	
0.000	**19.197**	**0.000**	**0.000**	**0.000**	**19.197**	**TOTAL AREA**	

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Area 1 - North Runoff Area=221,024 sf 0.00% Impervious Runoff Depth>0.52"
Flow Length=596' Tc=32.4 min CN=61 Runoff=1.2 cfs 0.221 af

Subcatchment 2S: Area 1 - West Runoff Area=235,573 sf 0.34% Impervious Runoff Depth>0.56"
Flow Length=437' Tc=24.6 min CN=62 Runoff=1.7 cfs 0.254 af

Subcatchment 3S: Area 1 - East Runoff Area=174,284 sf 0.46% Impervious Runoff Depth>0.65"
Flow Length=831' Tc=42.6 min CN=64 Runoff=1.2 cfs 0.215 af

Subcatchment 4S: Area 2 - West Runoff Area=187,084 sf 0.22% Impervious Runoff Depth>0.59"
Flow Length=664' Tc=75.0 min CN=63 Runoff=0.8 cfs 0.213 af

Subcatchment 5S: Area 2 - East Runoff Area=18,251 sf 0.01% Impervious Runoff Depth>0.52"
Flow Length=214' Tc=30.4 min CN=61 Runoff=0.1 cfs 0.018 af

Link 4L: Wooded Area to East Inflow=1.2 cfs 0.215 af
Primary=1.2 cfs 0.215 af

Link 6L: To Reservoir Inflow=2.8 cfs 0.475 af
Primary=2.8 cfs 0.475 af

Link 7L: Off-Site Flow to South Inflow=0.8 cfs 0.213 af
Primary=0.8 cfs 0.213 af

Link 8L: Off-Site Flow to East Inflow=0.1 cfs 0.018 af
Primary=0.1 cfs 0.018 af

Total Runoff Area = 19.197 ac Runoff Volume = 0.922 af Average Runoff Depth = 0.58"
99.76% Pervious = 19.150 ac 0.24% Impervious = 0.046 ac

Summary for Subcatchment 1S: Area 1 - North

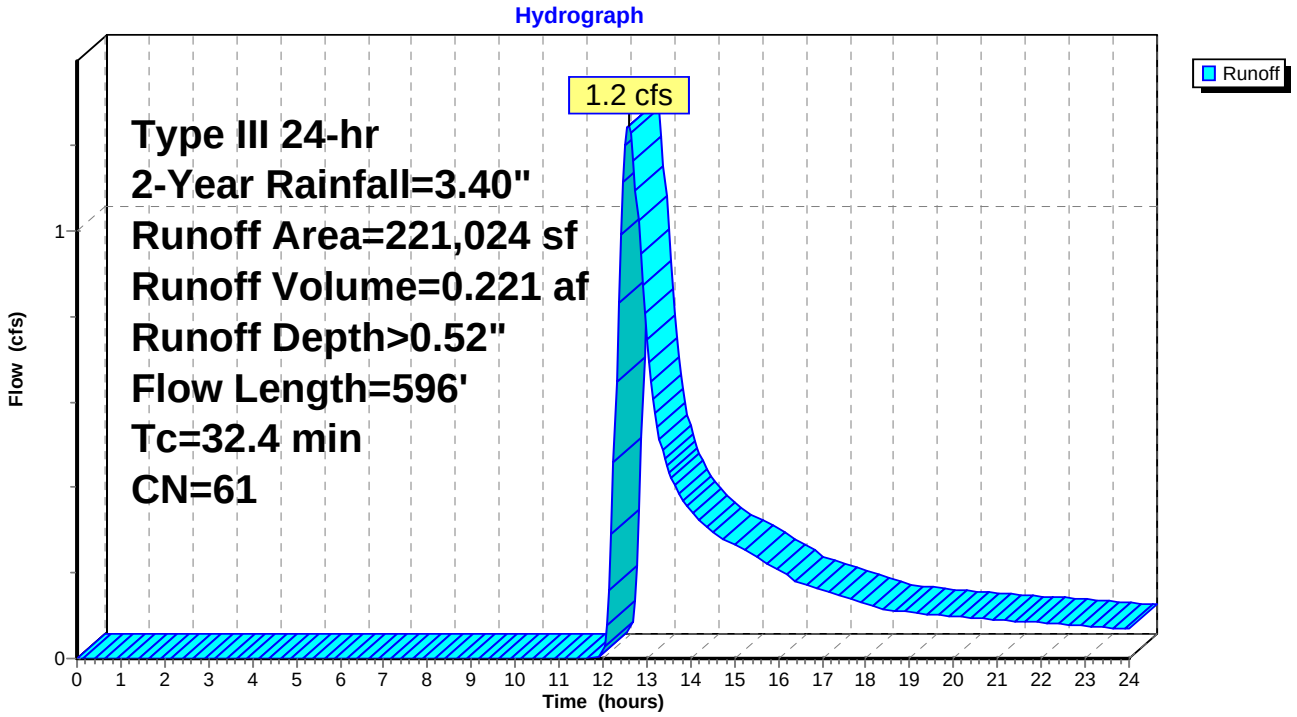
Runoff = 1.2 cfs @ 12.58 hrs, Volume= 0.221 af, Depth> 0.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.40"

	Area (sf)	CN	Description
	60,418	60	Woods, Fair, HSG B
*	160,598	61	>75% Grass cover, Solar Array Area, HSG B
*	8	98	Solar Array Posts, HSG B
	221,024	61	Weighted Average
	221,016		100.00% Pervious Area
	8		0.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.5	100	0.0177	0.11		**Sheet Flow, Grass - Solar Array Area** Grass: Dense n= 0.240 P2= 3.40"
1.0	40	0.0085	0.65		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
0.3	32	0.0625	1.75		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
2.9	143	0.0140	0.83		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
5.2	211	0.0095	0.68		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
0.4	31	0.0323	1.26		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
2.4	14	0.0323	0.10		**Sheet Flow, Grass (Flow disrupted by stone check dam)** Grass: Dense n= 0.240 P2= 3.40"
5.7	25	0.0323	0.07		**Sheet Flow, Woods (Flow disrupted by stone check dam)** Woods: Light underbrush n= 0.400 P2= 3.40"
32.4	596	Total			

Subcatchment 1S: Area 1 - North



Summary for Subcatchment 2S: Area 1 - West

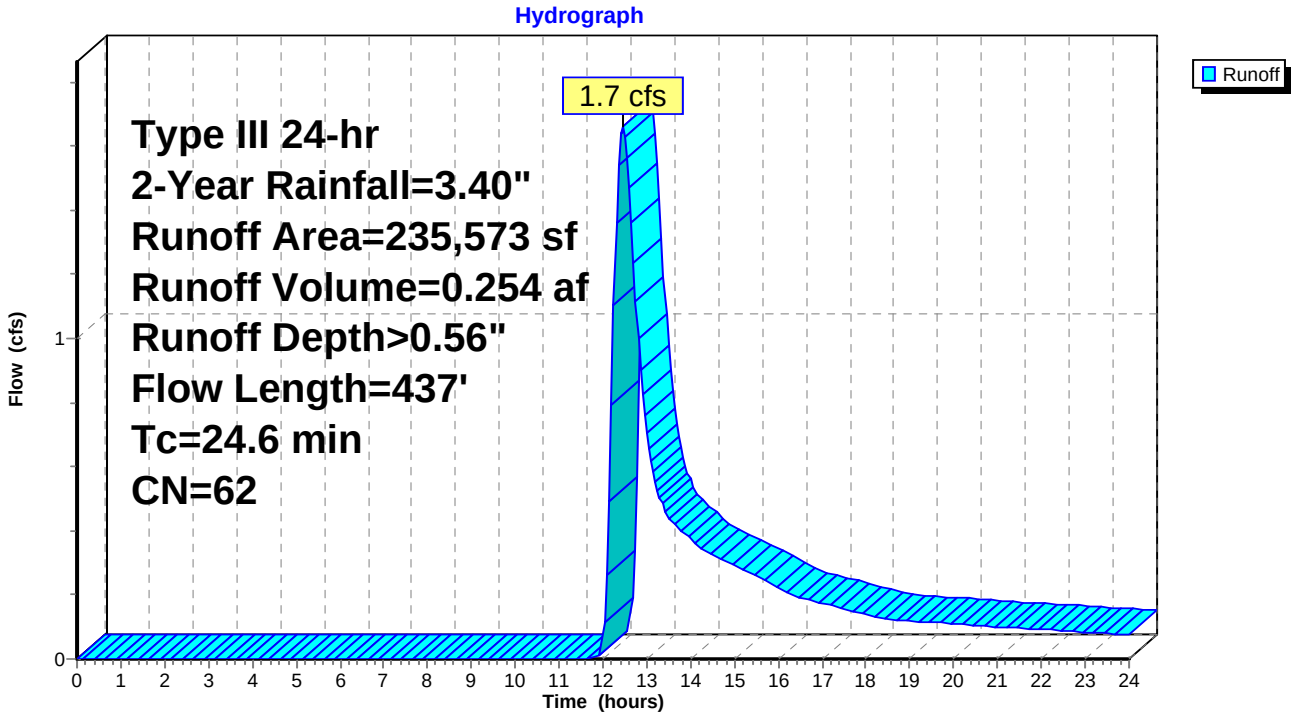
Runoff = 1.7 cfs @ 12.45 hrs, Volume= 0.254 af, Depth> 0.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.40"

	Area (sf)	CN	Description
*	226,231	61	>75% Grass cover, Solar Array Area, HSG B
	8,538	85	Gravel roads, HSG B
*	4	98	Solar Array Racking Posts, HSG B
*	800	98	Concrete Equipment Pad, HSG B
	235,573	62	Weighted Average
	234,769		99.66% Pervious Area
	804		0.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.0	100	0.0120	0.10		**Sheet Flow, Grass - Solar Array Area** Grass: Dense n= 0.240 P2= 3.40"
7.5	312	0.0099	0.70		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
0.1	25	0.1581	2.78		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
24.6	437	Total			

Subcatchment 2S: Area 1 - West



Summary for Subcatchment 3S: Area 1 - East

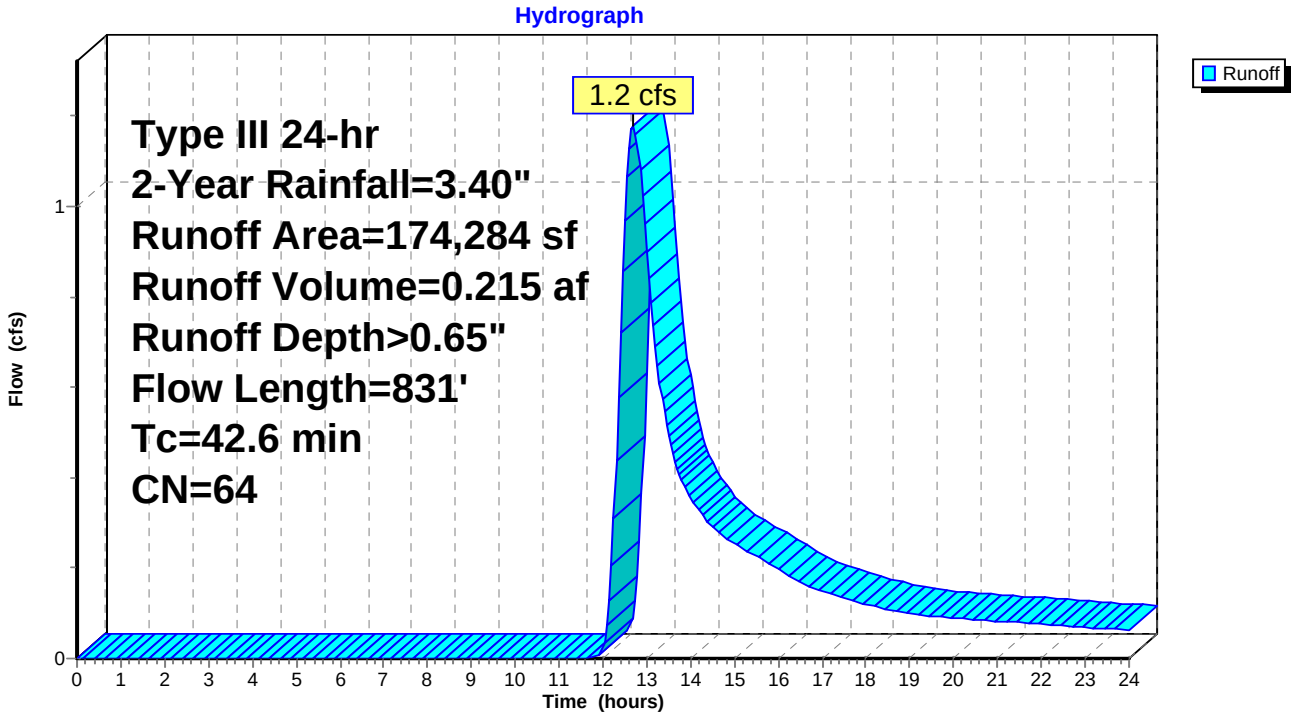
Runoff = 1.2 cfs @ 12.70 hrs, Volume= 0.215 af, Depth> 0.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.40"

	Area (sf)	CN	Description
	19,602	85	Gravel roads, HSG B
*	153,878	61	>75% Grass cover, Solar Array Area, HSG B
*	4	98	Solar Array Racking Posts, HSG B
*	800	98	Concrete Equipment Pads, HSG B
	174,284	64	Weighted Average
	173,480		99.54% Pervious Area
	804		0.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.1	100	0.0090	0.09		**Sheet Flow, Grass - Solar Array Area** Grass: Dense n= 0.240 P2= 3.40"
7.1	174	0.0034	0.41		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
16.3	526	0.0059	0.54		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
0.1	31	0.0742	4.39		**Shallow Concentrated Flow, Grass/Gravel** Unpaved Kv= 16.1 fps
42.6	831	Total			

Subcatchment 3S: Area 1 - East



Summary for Subcatchment 4S: Area 2 - West

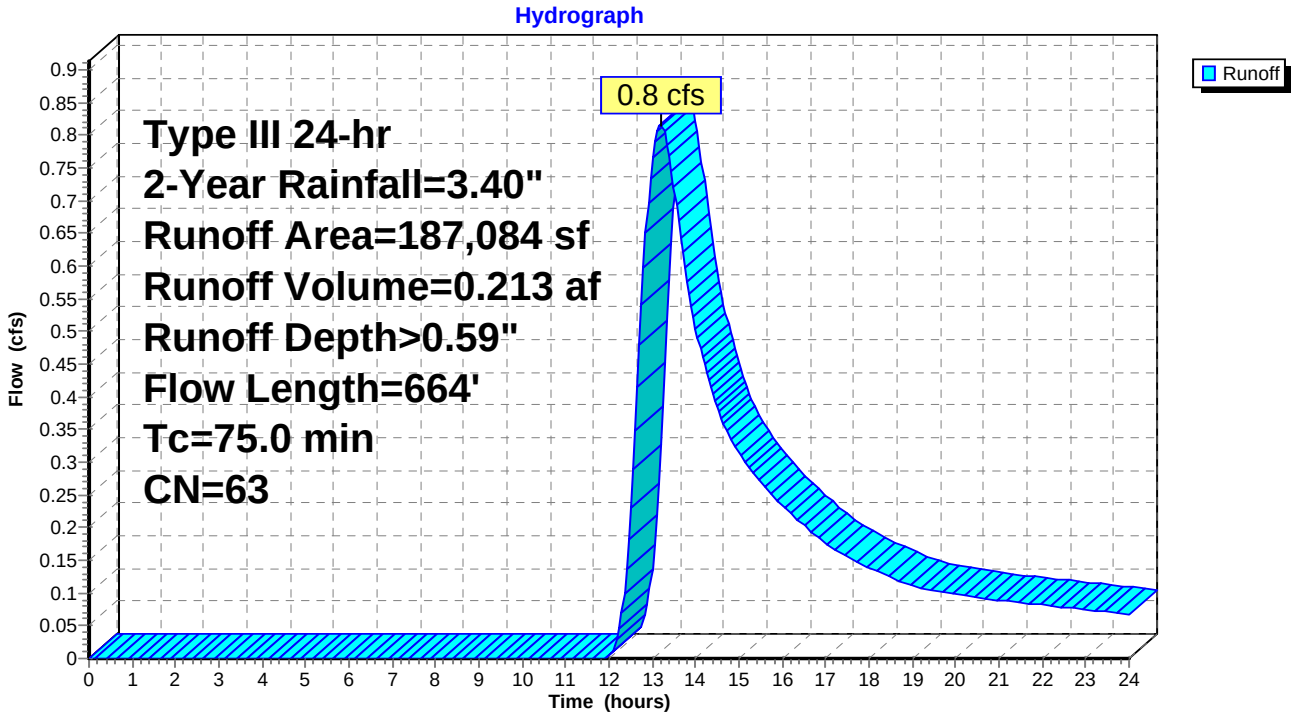
Runoff = 0.8 cfs @ 13.19 hrs, Volume= 0.213 af, Depth> 0.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.40"

	Area (sf)	CN	Description
	10,060	60	Woods, Fair, HSG B
*	161,719	61	>75% Grass cover, Solar Array Area, HSG B
	14,898	85	Gravel roads, HSG B
*	7	98	Solar Array Racking Posts, HSG B
*	400	98	Concrete Equipment Pad, HSG B
	187,084	63	Weighted Average
	186,677		99.78% Pervious Area
	407		0.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0	100	0.0080	0.08		**Sheet Flow, Grass - Solar Array Area** Grass: Dense n= 0.240 P2= 3.40"
1.3	86	0.0233	1.07		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
7.5	235	0.0055	0.52		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
13.3	177	0.0010	0.22		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
32.9	66	0.0010	0.03		**Sheet Flow, Grass (Flow disrupted by stone check dam)** Grass: Dense n= 0.240 P2= 3.40"
75.0	664	Total			

Subcatchment 4S: Area 2 - West



Summary for Subcatchment 5S: Area 2 - East

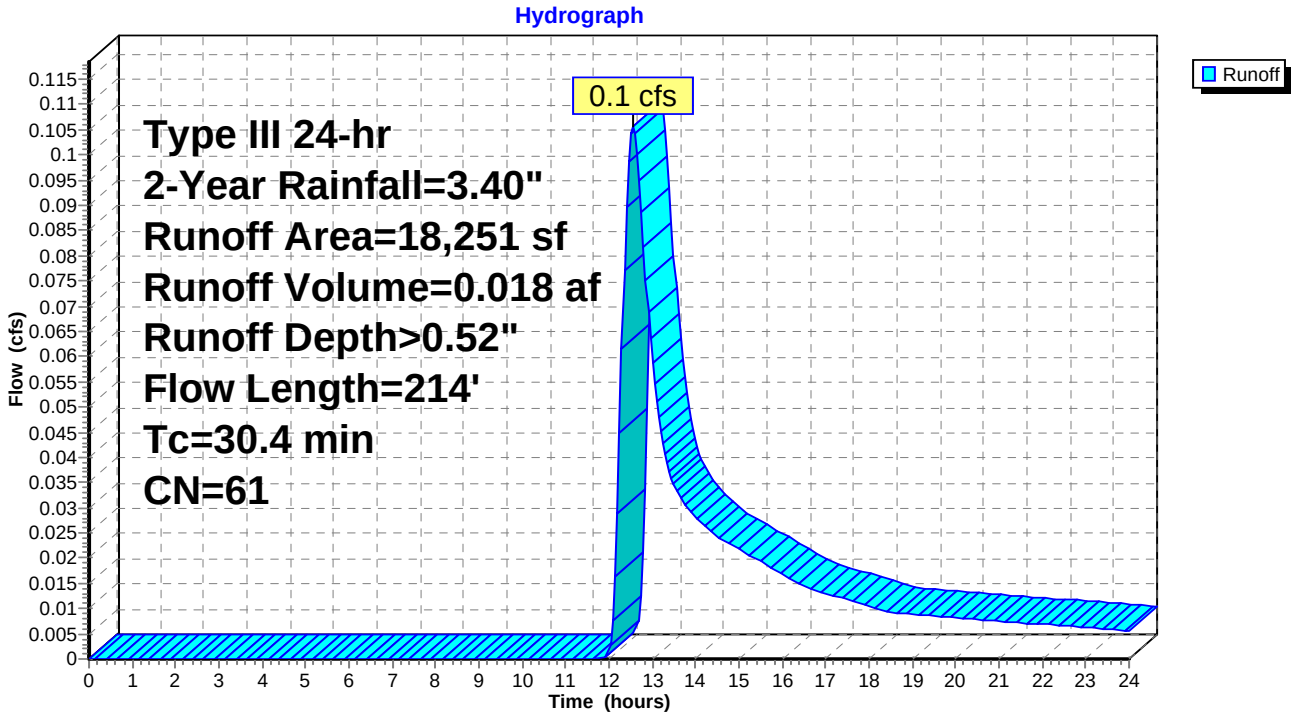
Runoff = 0.1 cfs @ 12.55 hrs, Volume= 0.018 af, Depth> 0.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.40"

	Area (sf)	CN	Description
*	18,250	61	>75% Grass cover, Solar Array Area, HSG B
*	1	98	Solar Array Racking Posts, HSG B
	18,251	61	Weighted Average
	18,250		99.99% Pervious Area
	1		0.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.2	58	0.0034	0.05		**Sheet Flow, Grass - Solar Array Area** Grass: Dense n= 0.240 P2= 3.40"
8.5	42	0.0119	0.08		**Sheet Flow, Grass - Solar Array Area** Grass: Dense n= 0.240 P2= 3.40"
2.8	86	0.0105	0.51		**Shallow Concentrated Flow, Grass - Solar Array Area** Woodland Kv= 5.0 fps
0.9	28	0.0050	0.49		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
30.4	214	Total			

Subcatchment 5S: Area 2 - East

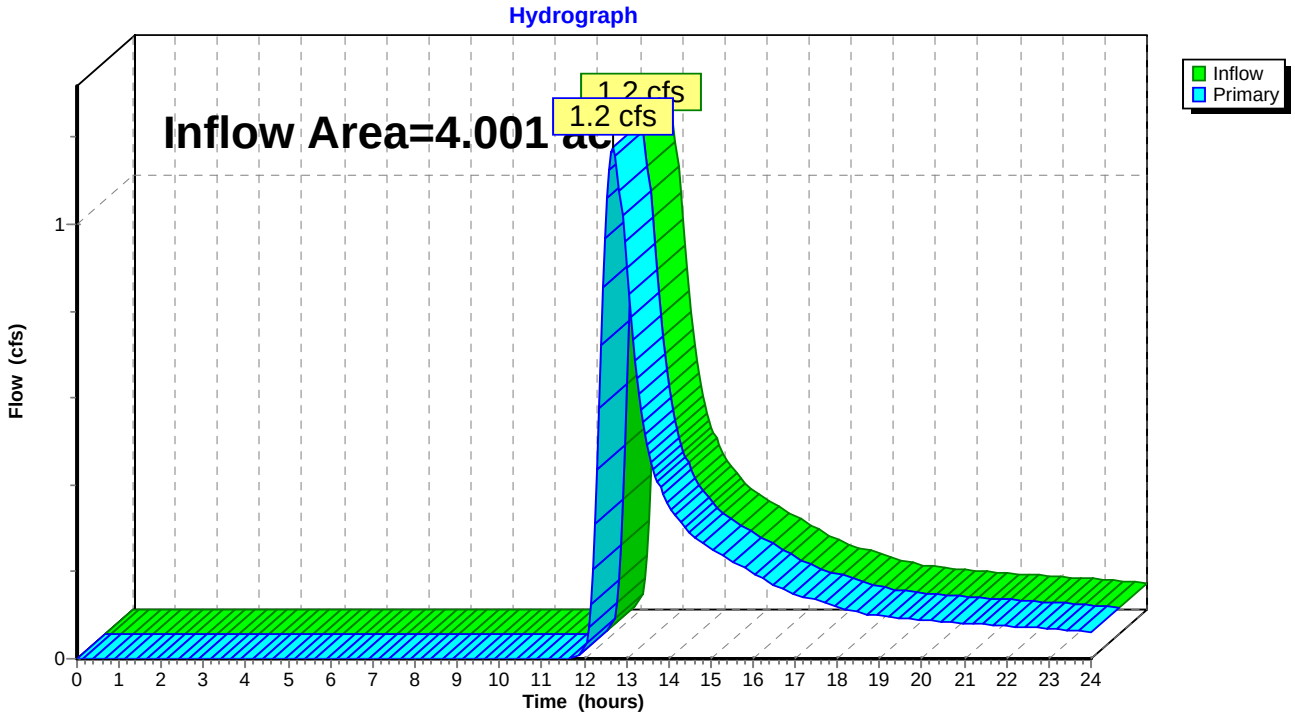


Summary for Link 4L: Wooded Area to East

Inflow Area = 4.001 ac, 0.46% Impervious, Inflow Depth > 0.65" for 2-Year event
Inflow = 1.2 cfs @ 12.70 hrs, Volume= 0.215 af
Primary = 1.2 cfs @ 12.70 hrs, Volume= 0.215 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 4L: Wooded Area to East

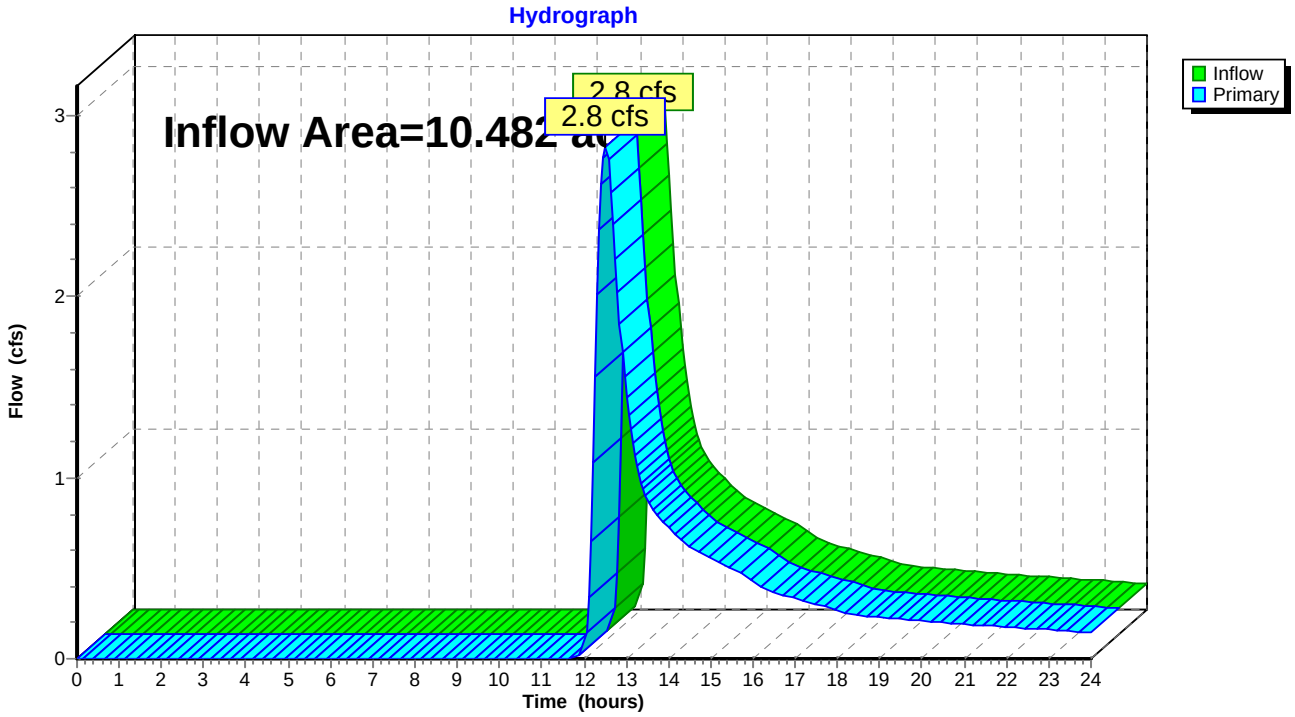


Summary for Link 6L: To Reservoir

Inflow Area = 10.482 ac, 0.18% Impervious, Inflow Depth > 0.54" for 2-Year event
Inflow = 2.8 cfs @ 12.51 hrs, Volume= 0.475 af
Primary = 2.8 cfs @ 12.51 hrs, Volume= 0.475 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 6L: To Reservoir

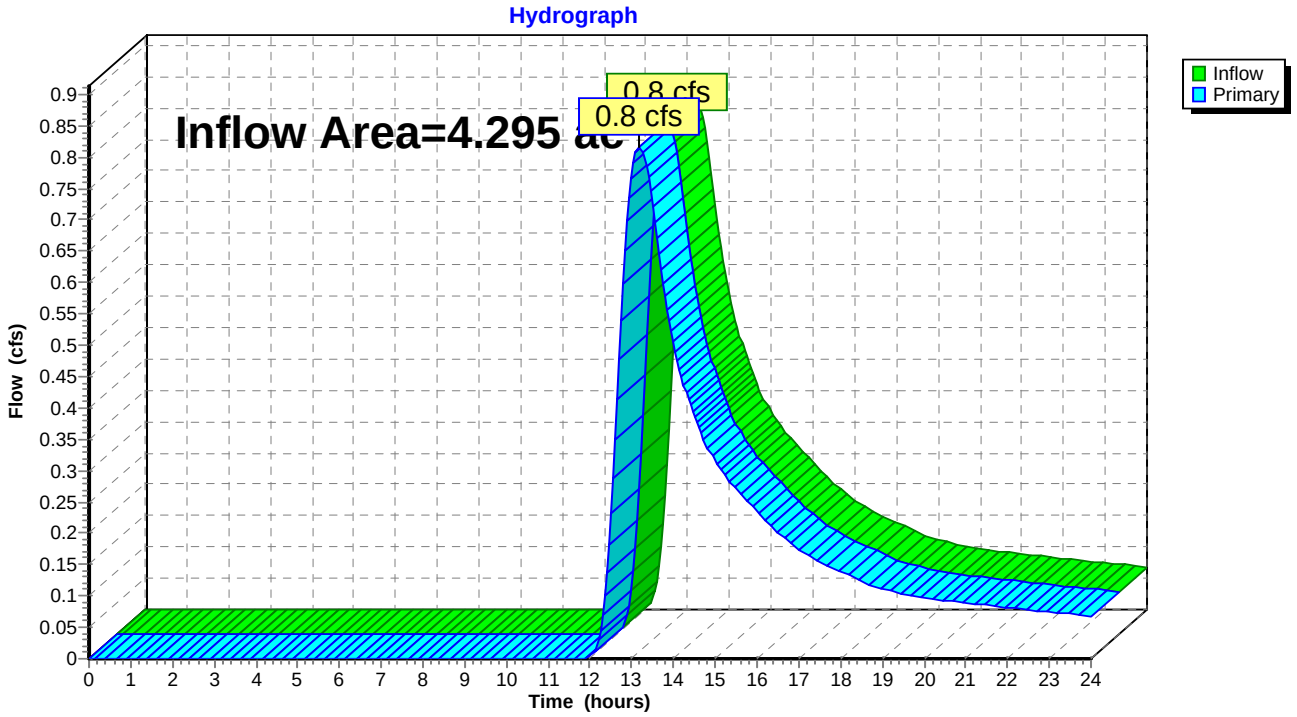


Summary for Link 7L: Off-Site Flow to South

Inflow Area = 4.295 ac, 0.22% Impervious, Inflow Depth > 0.59" for 2-Year event
Inflow = 0.8 cfs @ 13.19 hrs, Volume= 0.213 af
Primary = 0.8 cfs @ 13.19 hrs, Volume= 0.213 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 7L: Off-Site Flow to South

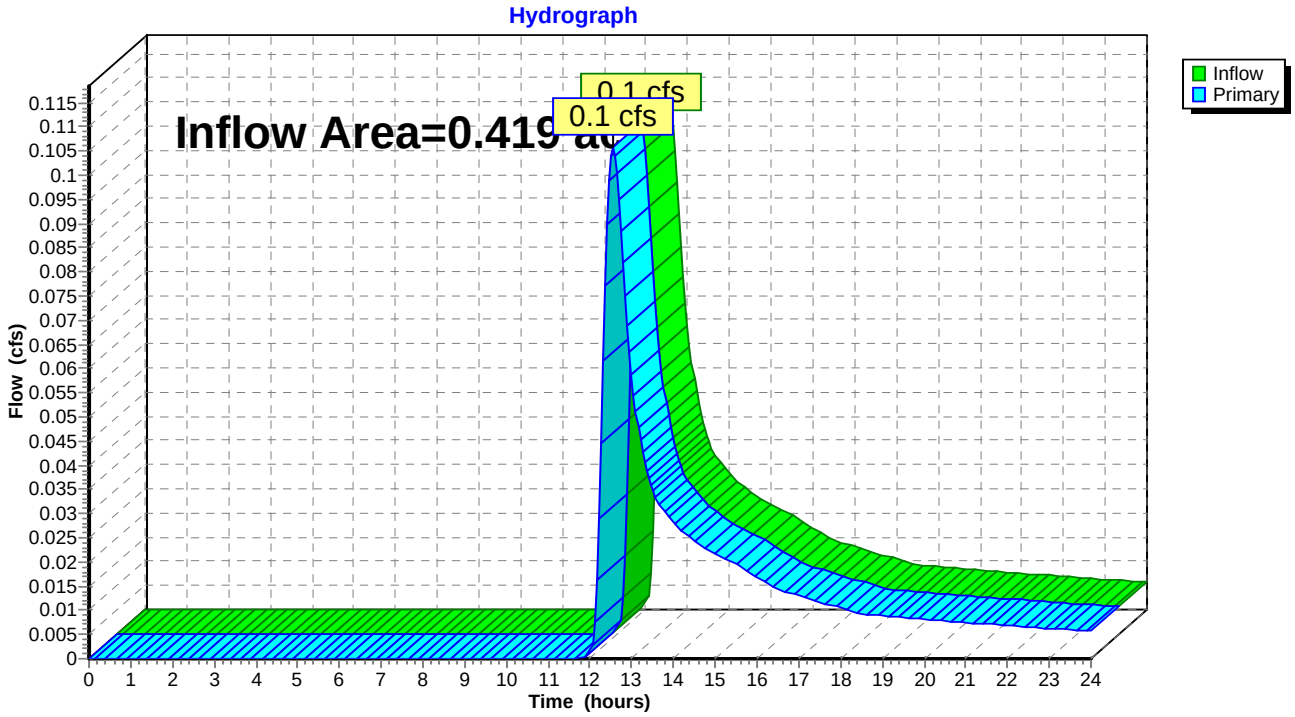


Summary for Link 8L: Off-Site Flow to East

Inflow Area = 0.419 ac, 0.01% Impervious, Inflow Depth > 0.52" for 2-Year event
Inflow = 0.1 cfs @ 12.55 hrs, Volume= 0.018 af
Primary = 0.1 cfs @ 12.55 hrs, Volume= 0.018 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 8L: Off-Site Flow to East



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Area 1 - North Runoff Area=221,024 sf 0.00% Impervious Runoff Depth>0.96"
Flow Length=596' Tc=32.4 min CN=61 Runoff=2.7 cfs 0.406 af

Subcatchment 2S: Area 1 - West Runoff Area=235,573 sf 0.34% Impervious Runoff Depth>1.02"
Flow Length=437' Tc=24.6 min CN=62 Runoff=3.5 cfs 0.459 af

Subcatchment 3S: Area 1 - East Runoff Area=174,284 sf 0.46% Impervious Runoff Depth>1.13"
Flow Length=831' Tc=42.6 min CN=64 Runoff=2.3 cfs 0.377 af

Subcatchment 4S: Area 2 - West Runoff Area=187,084 sf 0.22% Impervious Runoff Depth>1.06"
Flow Length=664' Tc=75.0 min CN=63 Runoff=1.6 cfs 0.379 af

Subcatchment 5S: Area 2 - East Runoff Area=18,251 sf 0.01% Impervious Runoff Depth>0.96"
Flow Length=214' Tc=30.4 min CN=61 Runoff=0.2 cfs 0.034 af

Link 4L: Wooded Area to East Inflow=2.3 cfs 0.377 af
Primary=2.3 cfs 0.377 af

Link 6L: To Reservoir Inflow=6.0 cfs 0.865 af
Primary=6.0 cfs 0.865 af

Link 7L: Off-Site Flow to South Inflow=1.6 cfs 0.379 af
Primary=1.6 cfs 0.379 af

Link 8L: Off-Site Flow to East Inflow=0.2 cfs 0.034 af
Primary=0.2 cfs 0.034 af

Total Runoff Area = 19.197 ac Runoff Volume = 1.655 af Average Runoff Depth = 1.03"
99.76% Pervious = 19.150 ac 0.24% Impervious = 0.046 ac

Summary for Subcatchment 1S: Area 1 - North

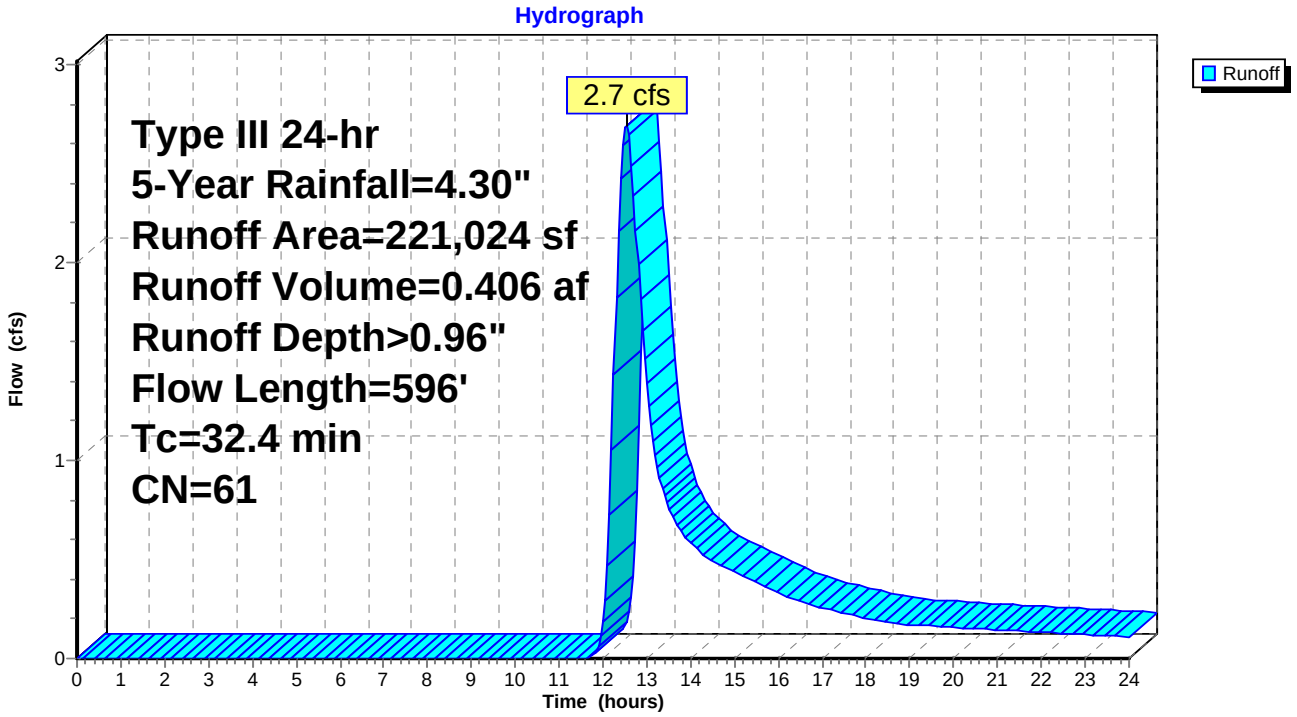
Runoff = 2.7 cfs @ 12.53 hrs, Volume= 0.406 af, Depth> 0.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 5-Year Rainfall=4.30"

	Area (sf)	CN	Description
	60,418	60	Woods, Fair, HSG B
*	160,598	61	>75% Grass cover, Solar Array Area, HSG B
*	8	98	Solar Array Posts, HSG B
	221,024	61	Weighted Average
	221,016		100.00% Pervious Area
	8		0.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.5	100	0.0177	0.11		**Sheet Flow, Grass - Solar Array Area** Grass: Dense n= 0.240 P2= 3.40"
1.0	40	0.0085	0.65		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
0.3	32	0.0625	1.75		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
2.9	143	0.0140	0.83		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
5.2	211	0.0095	0.68		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
0.4	31	0.0323	1.26		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
2.4	14	0.0323	0.10		**Sheet Flow, Grass (Flow disrupted by stone check dam)** Grass: Dense n= 0.240 P2= 3.40"
5.7	25	0.0323	0.07		**Sheet Flow, Woods (Flow disrupted by stone check dam)** Woods: Light underbrush n= 0.400 P2= 3.40"
32.4	596	Total			

Subcatchment 1S: Area 1 - North



Summary for Subcatchment 2S: Area 1 - West

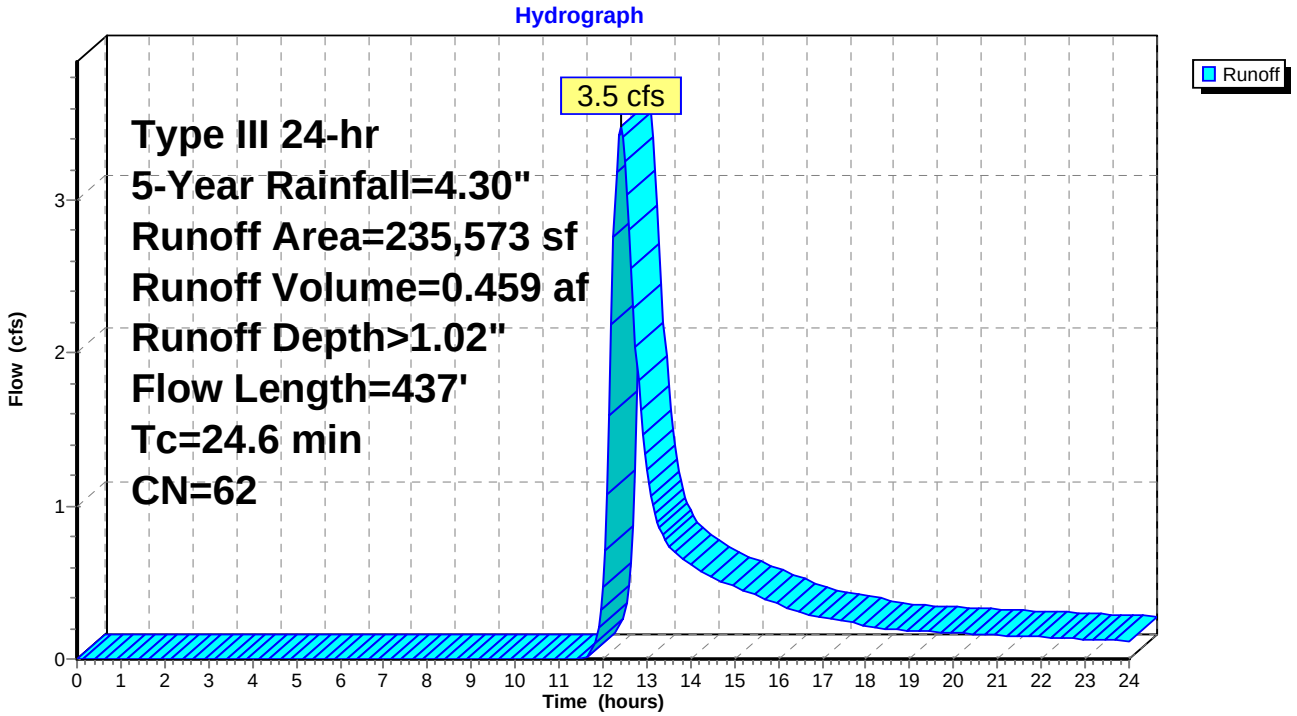
Runoff = 3.5 cfs @ 12.40 hrs, Volume= 0.459 af, Depth> 1.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 5-Year Rainfall=4.30"

	Area (sf)	CN	Description
*	226,231	61	>75% Grass cover, Solar Array Area, HSG B
	8,538	85	Gravel roads, HSG B
*	4	98	Solar Array Racking Posts, HSG B
*	800	98	Concrete Equipment Pad, HSG B
	235,573	62	Weighted Average
	234,769		99.66% Pervious Area
	804		0.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.0	100	0.0120	0.10		**Sheet Flow, Grass - Solar Array Area** Grass: Dense n= 0.240 P2= 3.40"
7.5	312	0.0099	0.70		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
0.1	25	0.1581	2.78		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
24.6	437	Total			

Subcatchment 2S: Area 1 - West



Summary for Subcatchment 3S: Area 1 - East

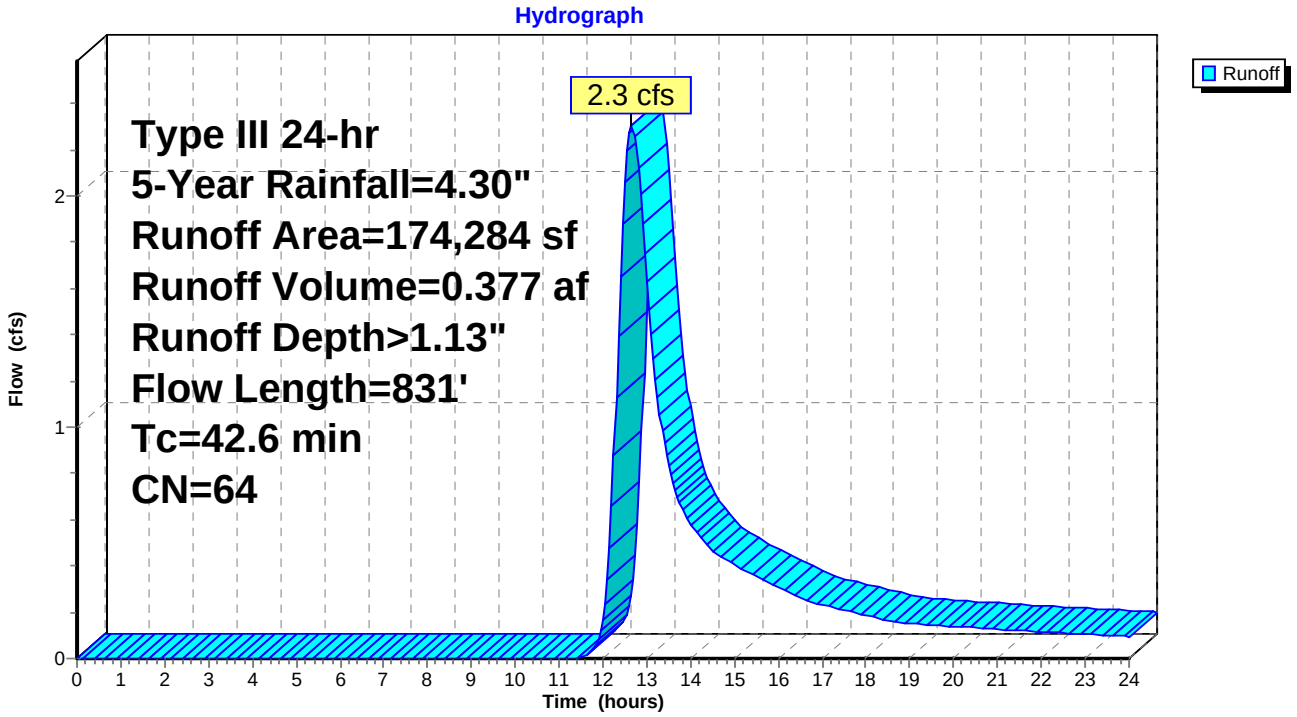
Runoff = 2.3 cfs @ 12.66 hrs, Volume= 0.377 af, Depth> 1.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 5-Year Rainfall=4.30"

	Area (sf)	CN	Description
	19,602	85	Gravel roads, HSG B
*	153,878	61	>75% Grass cover, Solar Array Area, HSG B
*	4	98	Solar Array Racking Posts, HSG B
*	800	98	Concrete Equipment Pads, HSG B
	174,284	64	Weighted Average
	173,480		99.54% Pervious Area
	804		0.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.1	100	0.0090	0.09		**Sheet Flow, Grass - Solar Array Area** Grass: Dense n= 0.240 P2= 3.40"
7.1	174	0.0034	0.41		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
16.3	526	0.0059	0.54		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
0.1	31	0.0742	4.39		**Shallow Concentrated Flow, Grass/Gravel** Unpaved Kv= 16.1 fps
42.6	831	Total			

Subcatchment 3S: Area 1 - East



Summary for Subcatchment 4S: Area 2 - West

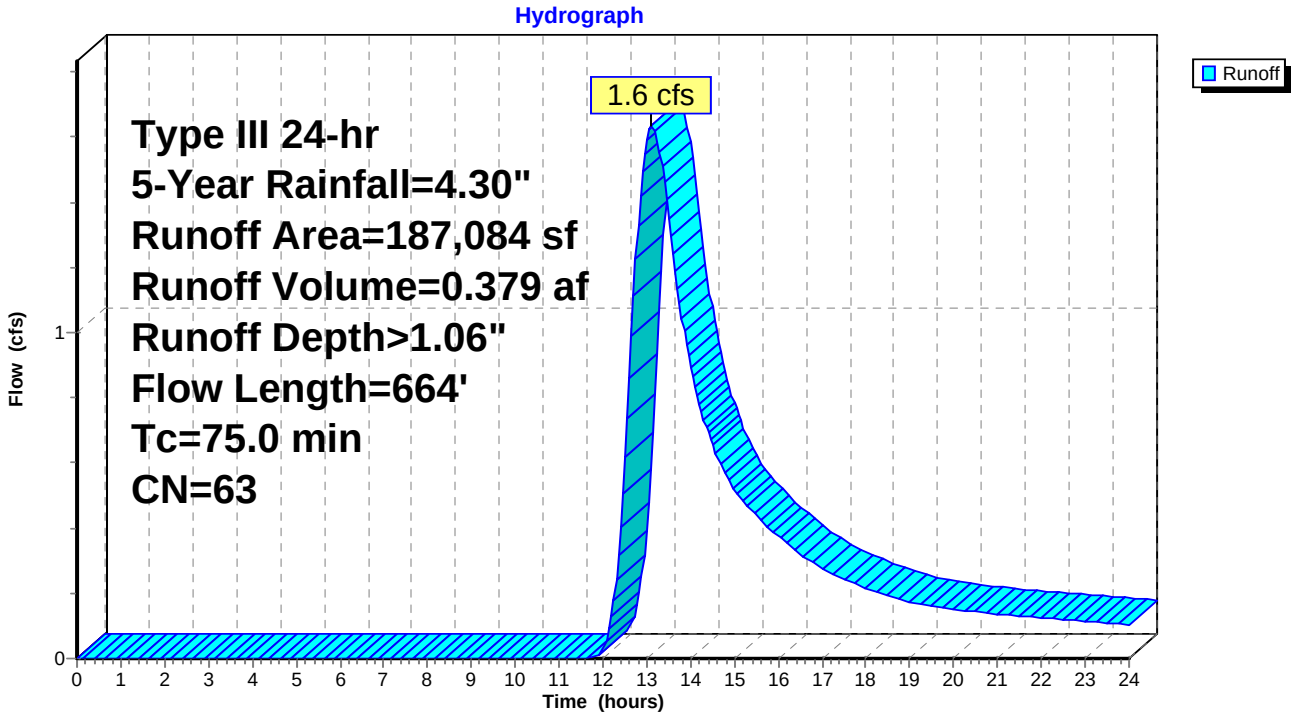
Runoff = 1.6 cfs @ 13.11 hrs, Volume= 0.379 af, Depth> 1.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 5-Year Rainfall=4.30"

	Area (sf)	CN	Description
	10,060	60	Woods, Fair, HSG B
*	161,719	61	>75% Grass cover, Solar Array Area, HSG B
	14,898	85	Gravel roads, HSG B
*	7	98	Solar Array Racking Posts, HSG B
*	400	98	Concrete Equipment Pad, HSG B
	187,084	63	Weighted Average
	186,677		99.78% Pervious Area
	407		0.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0	100	0.0080	0.08		**Sheet Flow, Grass - Solar Array Area** Grass: Dense n= 0.240 P2= 3.40"
1.3	86	0.0233	1.07		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
7.5	235	0.0055	0.52		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
13.3	177	0.0010	0.22		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
32.9	66	0.0010	0.03		**Sheet Flow, Grass (Flow disrupted by stone check dam)** Grass: Dense n= 0.240 P2= 3.40"
75.0	664	Total			

Subcatchment 4S: Area 2 - West



Summary for Subcatchment 5S: Area 2 - East

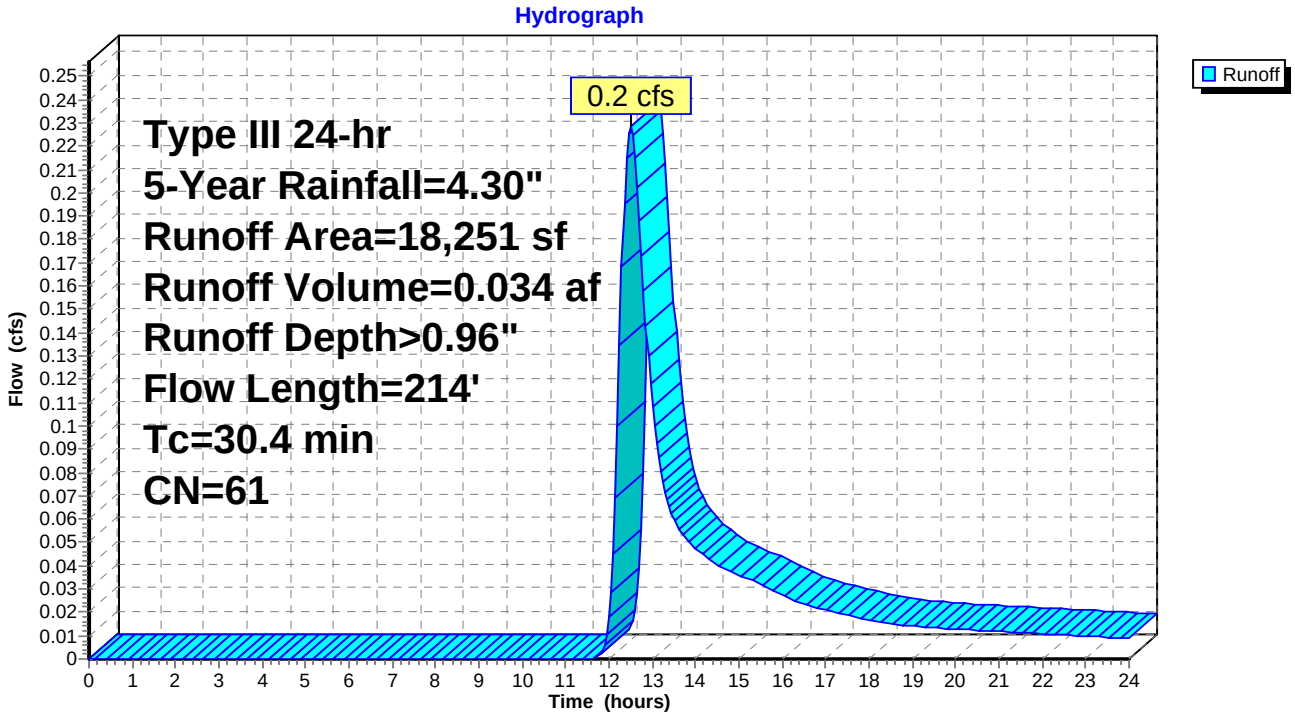
Runoff = 0.2 cfs @ 12.50 hrs, Volume= 0.034 af, Depth> 0.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 5-Year Rainfall=4.30"

	Area (sf)	CN	Description
*	18,250	61	>75% Grass cover, Solar Array Area, HSG B
*	1	98	Solar Array Racking Posts, HSG B
	18,251	61	Weighted Average
	18,250		99.99% Pervious Area
	1		0.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.2	58	0.0034	0.05		**Sheet Flow, Grass - Solar Array Area** Grass: Dense n= 0.240 P2= 3.40"
8.5	42	0.0119	0.08		**Sheet Flow, Grass - Solar Array Area** Grass: Dense n= 0.240 P2= 3.40"
2.8	86	0.0105	0.51		**Shallow Concentrated Flow, Grass - Solar Array Area** Woodland Kv= 5.0 fps
0.9	28	0.0050	0.49		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
30.4	214	Total			

Subcatchment 5S: Area 2 - East

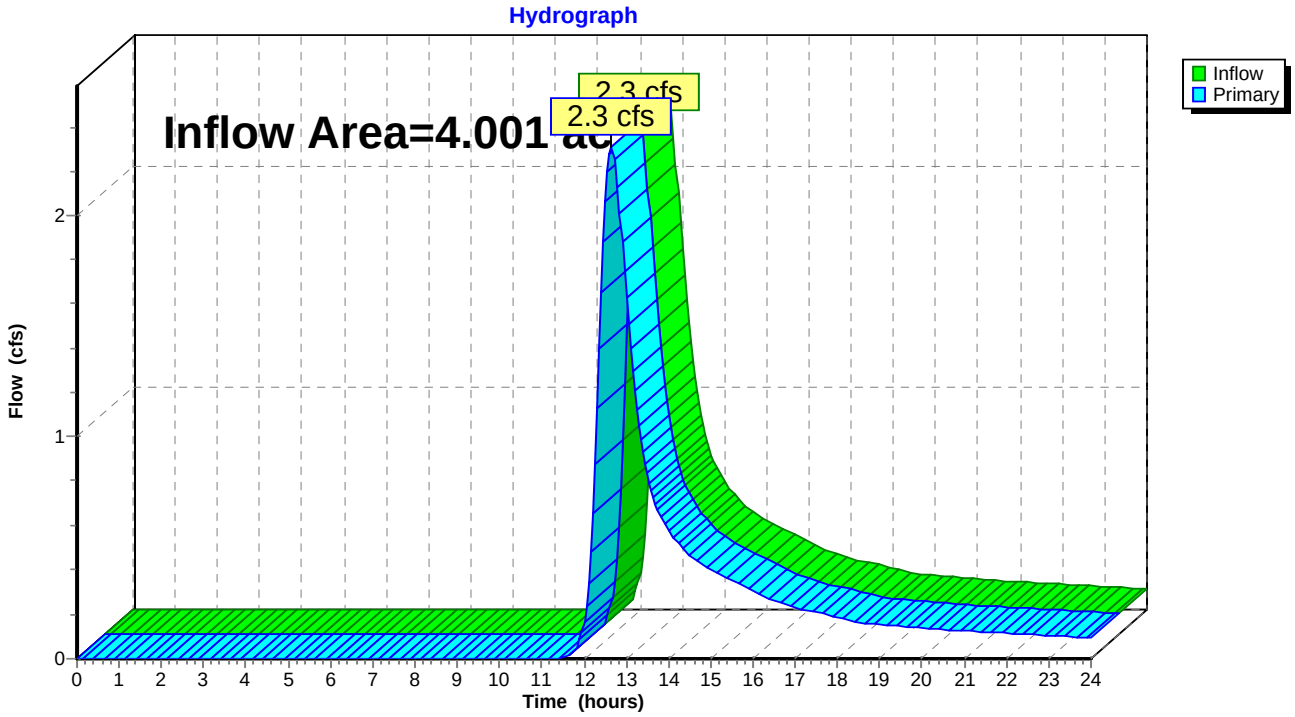


Summary for Link 4L: Wooded Area to East

Inflow Area = 4.001 ac, 0.46% Impervious, Inflow Depth > 1.13" for 5-Year event
Inflow = 2.3 cfs @ 12.66 hrs, Volume= 0.377 af
Primary = 2.3 cfs @ 12.66 hrs, Volume= 0.377 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 4L: Wooded Area to East

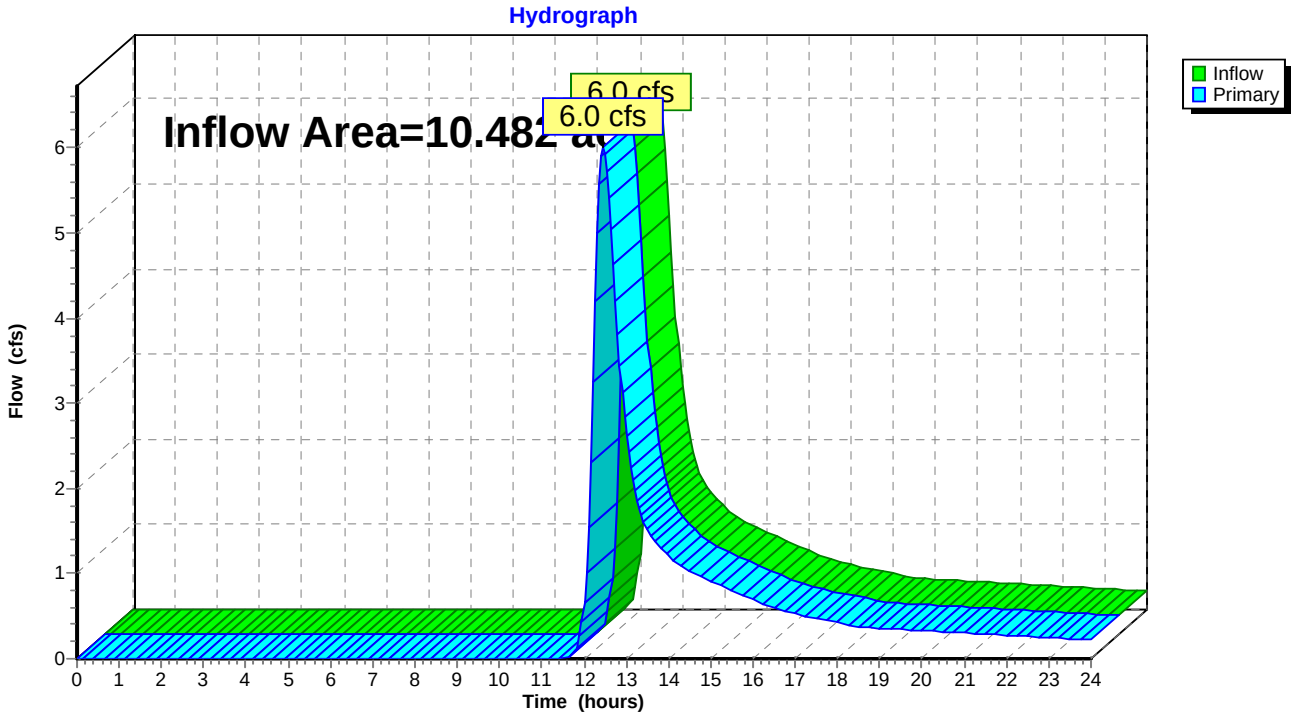


Summary for Link 6L: To Reservoir

Inflow Area = 10.482 ac, 0.18% Impervious, Inflow Depth > 0.99" for 5-Year event
Inflow = 6.0 cfs @ 12.45 hrs, Volume= 0.865 af
Primary = 6.0 cfs @ 12.45 hrs, Volume= 0.865 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 6L: To Reservoir

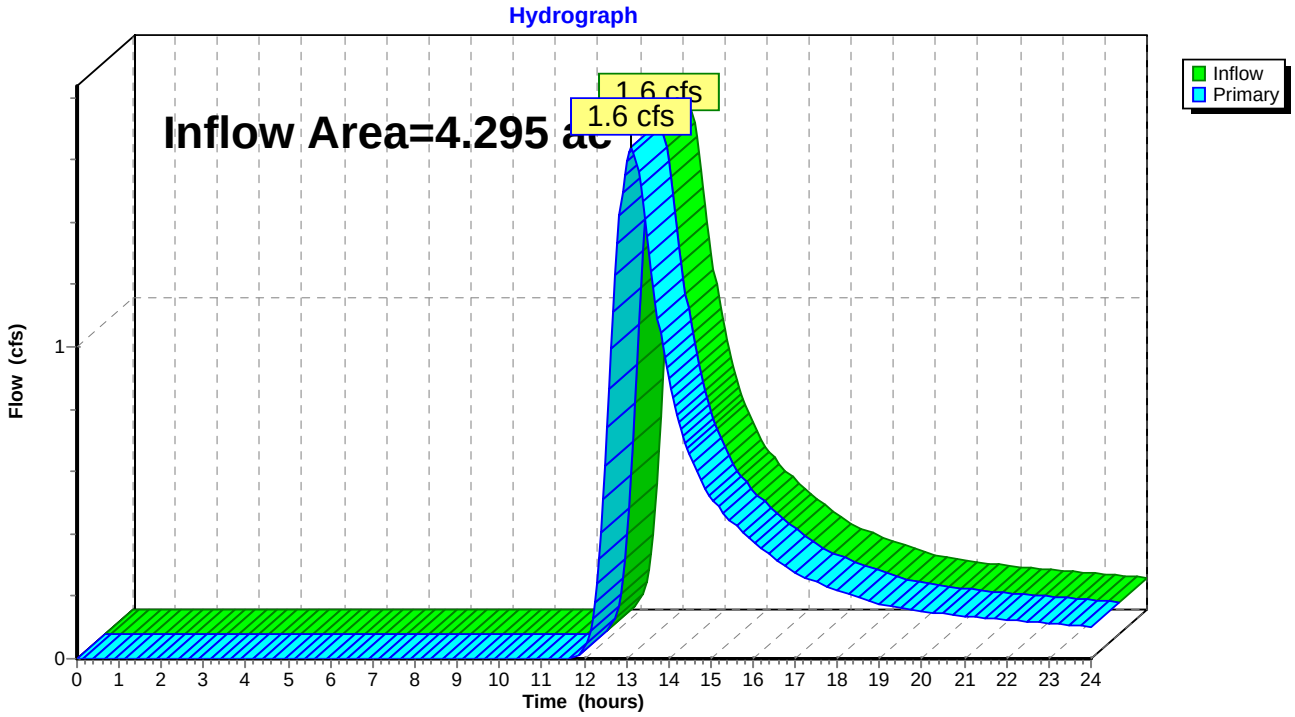


Summary for Link 7L: Off-Site Flow to South

Inflow Area = 4.295 ac, 0.22% Impervious, Inflow Depth > 1.06" for 5-Year event
Inflow = 1.6 cfs @ 13.11 hrs, Volume= 0.379 af
Primary = 1.6 cfs @ 13.11 hrs, Volume= 0.379 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 7L: Off-Site Flow to South

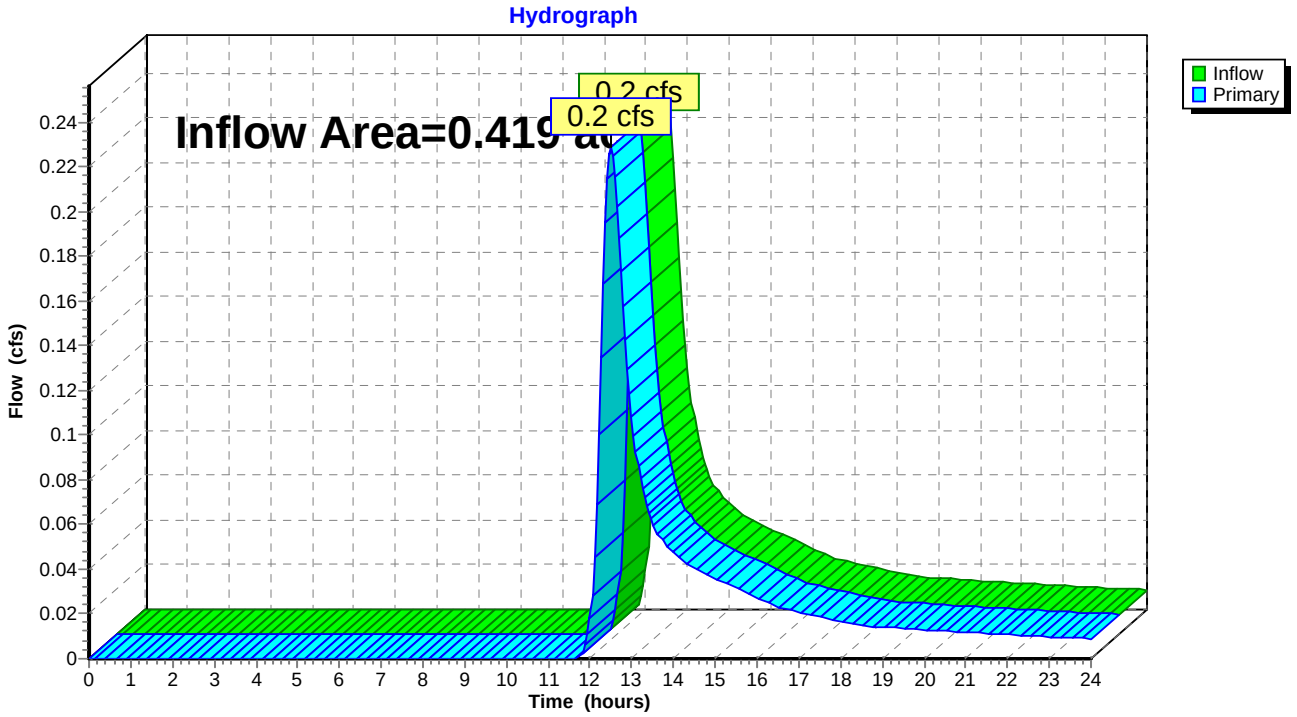


Summary for Link 8L: Off-Site Flow to East

Inflow Area = 0.419 ac, 0.01% Impervious, Inflow Depth > 0.96" for 5-Year event
Inflow = 0.2 cfs @ 12.50 hrs, Volume= 0.034 af
Primary = 0.2 cfs @ 12.50 hrs, Volume= 0.034 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 8L: Off-Site Flow to East



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Area 1 - North Runoff Area=221,024 sf 0.00% Impervious Runoff Depth>1.36"
Flow Length=596' Tc=32.4 min CN=61 Runoff=4.0 cfs 0.574 af

Subcatchment 2S: Area 1 - West Runoff Area=235,573 sf 0.34% Impervious Runoff Depth>1.43"
Flow Length=437' Tc=24.6 min CN=62 Runoff=5.2 cfs 0.644 af

Subcatchment 3S: Area 1 - East Runoff Area=174,284 sf 0.46% Impervious Runoff Depth>1.56"
Flow Length=831' Tc=42.6 min CN=64 Runoff=3.3 cfs 0.521 af

Subcatchment 4S: Area 2 - West Runoff Area=187,084 sf 0.22% Impervious Runoff Depth>1.48"
Flow Length=664' Tc=75.0 min CN=63 Runoff=2.4 cfs 0.528 af

Subcatchment 5S: Area 2 - East Runoff Area=18,251 sf 0.01% Impervious Runoff Depth>1.36"
Flow Length=214' Tc=30.4 min CN=61 Runoff=0.3 cfs 0.047 af

Link 4L: Wooded Area to East Inflow=3.3 cfs 0.521 af
Primary=3.3 cfs 0.521 af

Link 6L: To Reservoir Inflow=8.9 cfs 1.217 af
Primary=8.9 cfs 1.217 af

Link 7L: Off-Site Flow to South Inflow=2.4 cfs 0.528 af
Primary=2.4 cfs 0.528 af

Link 8L: Off-Site Flow to East Inflow=0.3 cfs 0.047 af
Primary=0.3 cfs 0.047 af

Total Runoff Area = 19.197 ac Runoff Volume = 2.314 af Average Runoff Depth = 1.45"
99.76% Pervious = 19.150 ac 0.24% Impervious = 0.046 ac

Summary for Subcatchment 1S: Area 1 - North

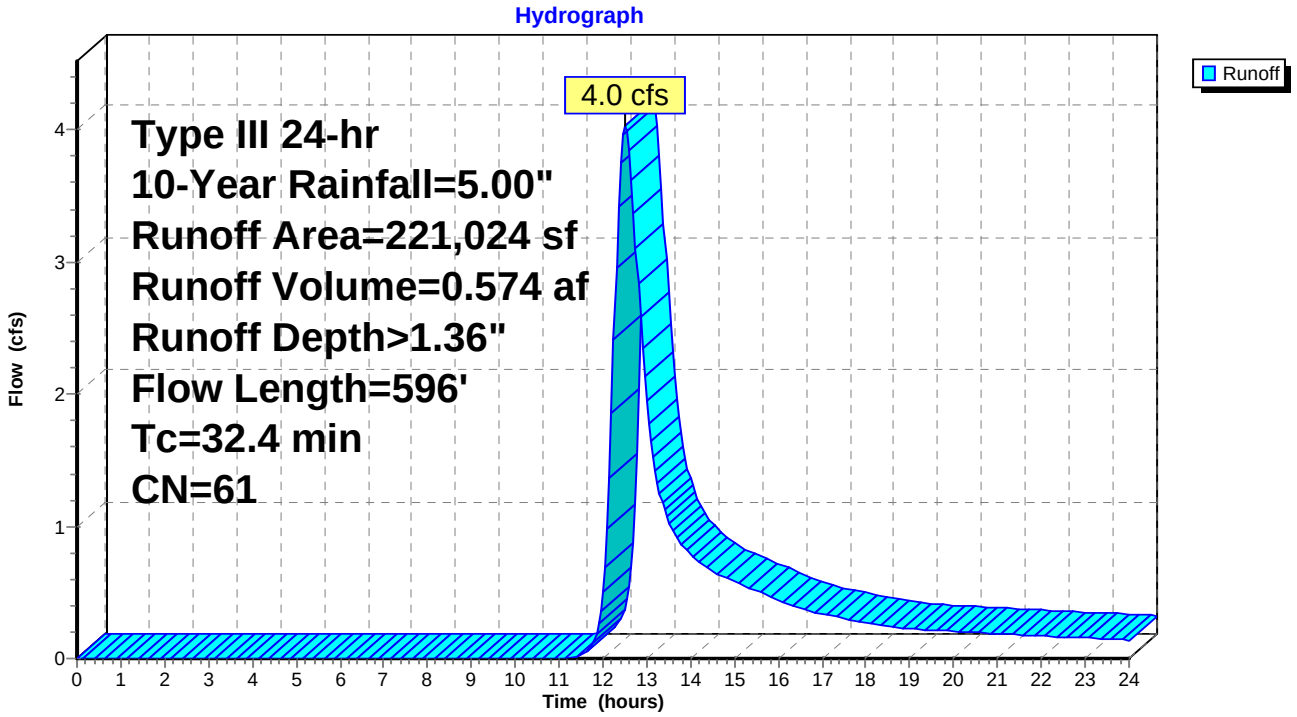
Runoff = 4.0 cfs @ 12.51 hrs, Volume= 0.574 af, Depth> 1.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.00"

	Area (sf)	CN	Description
	60,418	60	Woods, Fair, HSG B
*	160,598	61	>75% Grass cover, Solar Array Area, HSG B
*	8	98	Solar Array Posts, HSG B
	221,024	61	Weighted Average
	221,016		100.00% Pervious Area
	8		0.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.5	100	0.0177	0.11		**Sheet Flow, Grass - Solar Array Area** Grass: Dense n= 0.240 P2= 3.40"
1.0	40	0.0085	0.65		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
0.3	32	0.0625	1.75		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
2.9	143	0.0140	0.83		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
5.2	211	0.0095	0.68		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
0.4	31	0.0323	1.26		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
2.4	14	0.0323	0.10		**Sheet Flow, Grass (Flow disrupted by stone check dam)** Grass: Dense n= 0.240 P2= 3.40"
5.7	25	0.0323	0.07		**Sheet Flow, Woods (Flow disrupted by stone check dam)** Woods: Light underbrush n= 0.400 P2= 3.40"
32.4	596	Total			

Subcatchment 1S: Area 1 - North



Summary for Subcatchment 2S: Area 1 - West

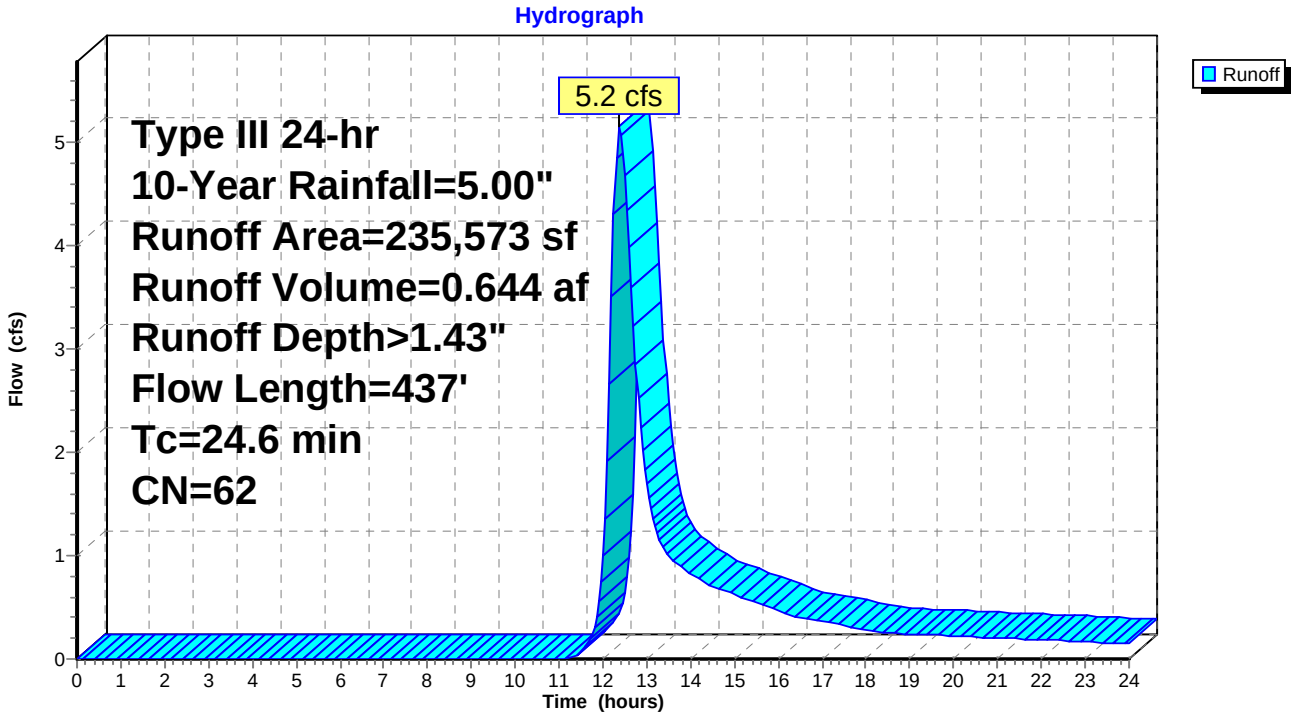
Runoff = 5.2 cfs @ 12.38 hrs, Volume= 0.644 af, Depth> 1.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.00"

	Area (sf)	CN	Description
*	226,231	61	>75% Grass cover, Solar Array Area, HSG B
	8,538	85	Gravel roads, HSG B
*	4	98	Solar Array Racking Posts, HSG B
*	800	98	Concrete Equipment Pad, HSG B
	235,573	62	Weighted Average
	234,769		99.66% Pervious Area
	804		0.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.0	100	0.0120	0.10		**Sheet Flow, Grass - Solar Array Area** Grass: Dense n= 0.240 P2= 3.40"
7.5	312	0.0099	0.70		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
0.1	25	0.1581	2.78		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
24.6	437	Total			

Subcatchment 2S: Area 1 - West



Summary for Subcatchment 3S: Area 1 - East

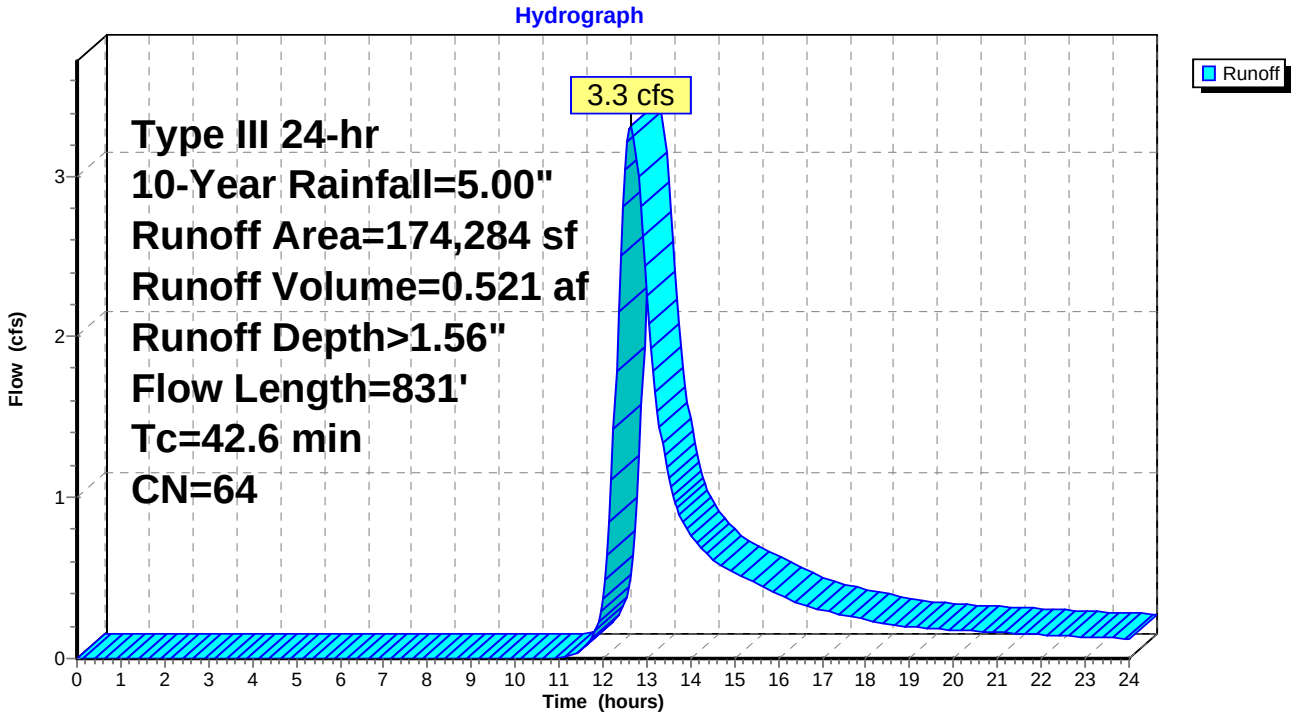
Runoff = 3.3 cfs @ 12.64 hrs, Volume= 0.521 af, Depth> 1.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.00"

	Area (sf)	CN	Description
	19,602	85	Gravel roads, HSG B
*	153,878	61	>75% Grass cover, Solar Array Area, HSG B
*	4	98	Solar Array Racking Posts, HSG B
*	800	98	Concrete Equipment Pads, HSG B
	174,284	64	Weighted Average
	173,480		99.54% Pervious Area
	804		0.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.1	100	0.0090	0.09		**Sheet Flow, Grass - Solar Array Area** Grass: Dense n= 0.240 P2= 3.40"
7.1	174	0.0034	0.41		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
16.3	526	0.0059	0.54		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
0.1	31	0.0742	4.39		**Shallow Concentrated Flow, Grass/Gravel** Unpaved Kv= 16.1 fps
42.6	831	Total			

Subcatchment 3S: Area 1 - East



Summary for Subcatchment 4S: Area 2 - West

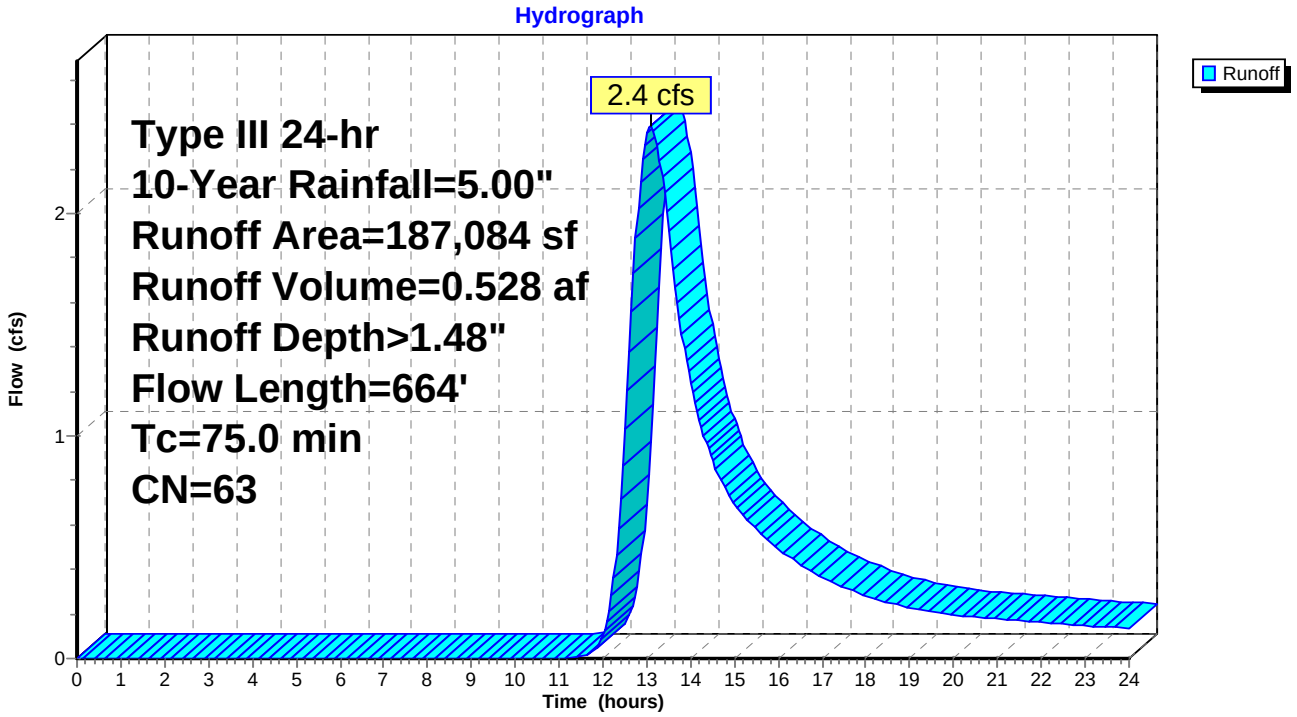
Runoff = 2.4 cfs @ 13.09 hrs, Volume= 0.528 af, Depth> 1.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.00"

	Area (sf)	CN	Description
	10,060	60	Woods, Fair, HSG B
*	161,719	61	>75% Grass cover, Solar Array Area, HSG B
	14,898	85	Gravel roads, HSG B
*	7	98	Solar Array Racking Posts, HSG B
*	400	98	Concrete Equipment Pad, HSG B
	187,084	63	Weighted Average
	186,677		99.78% Pervious Area
	407		0.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0	100	0.0080	0.08		**Sheet Flow, Grass - Solar Array Area** Grass: Dense n= 0.240 P2= 3.40"
1.3	86	0.0233	1.07		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
7.5	235	0.0055	0.52		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
13.3	177	0.0010	0.22		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
32.9	66	0.0010	0.03		**Sheet Flow, Grass (Flow disrupted by stone check dam)** Grass: Dense n= 0.240 P2= 3.40"
75.0	664	Total			

Subcatchment 4S: Area 2 - West



Summary for Subcatchment 5S: Area 2 - East

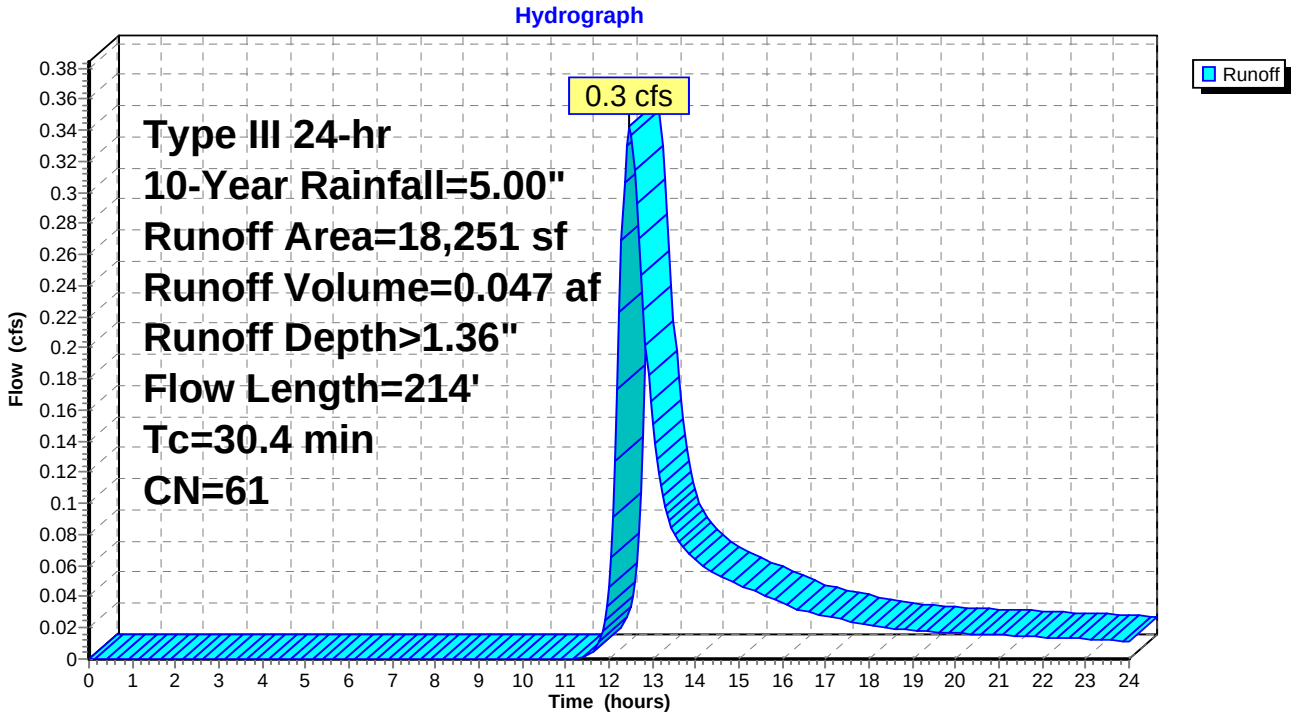
Runoff = 0.3 cfs @ 12.47 hrs, Volume= 0.047 af, Depth> 1.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.00"

	Area (sf)	CN	Description
*	18,250	61	>75% Grass cover, Solar Array Area, HSG B
*	1	98	Solar Array Racking Posts, HSG B
	18,251	61	Weighted Average
	18,250		99.99% Pervious Area
	1		0.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.2	58	0.0034	0.05		**Sheet Flow, Grass - Solar Array Area** Grass: Dense n= 0.240 P2= 3.40"
8.5	42	0.0119	0.08		**Sheet Flow, Grass - Solar Array Area** Grass: Dense n= 0.240 P2= 3.40"
2.8	86	0.0105	0.51		**Shallow Concentrated Flow, Grass - Solar Array Area** Woodland Kv= 5.0 fps
0.9	28	0.0050	0.49		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
30.4	214	Total			

Subcatchment 5S: Area 2 - East

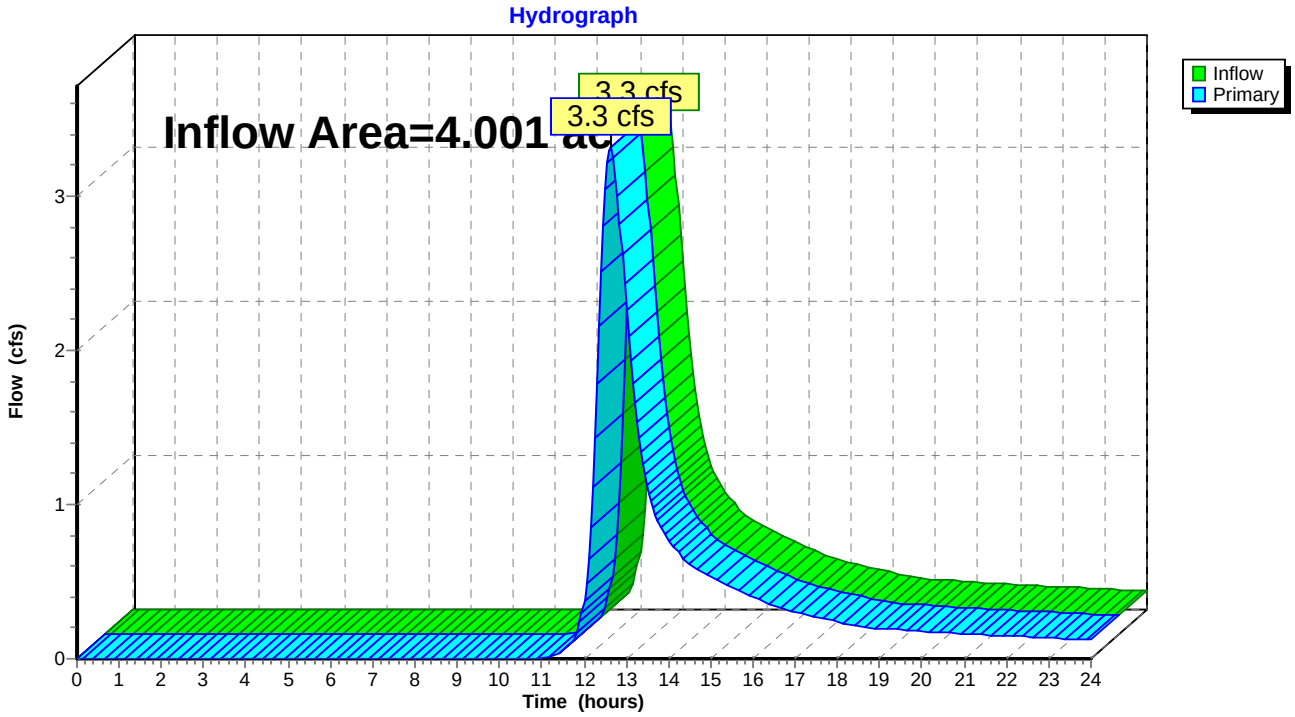


Summary for Link 4L: Wooded Area to East

Inflow Area = 4.001 ac, 0.46% Impervious, Inflow Depth > 1.56" for 10-Year event
Inflow = 3.3 cfs @ 12.64 hrs, Volume= 0.521 af
Primary = 3.3 cfs @ 12.64 hrs, Volume= 0.521 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 4L: Wooded Area to East

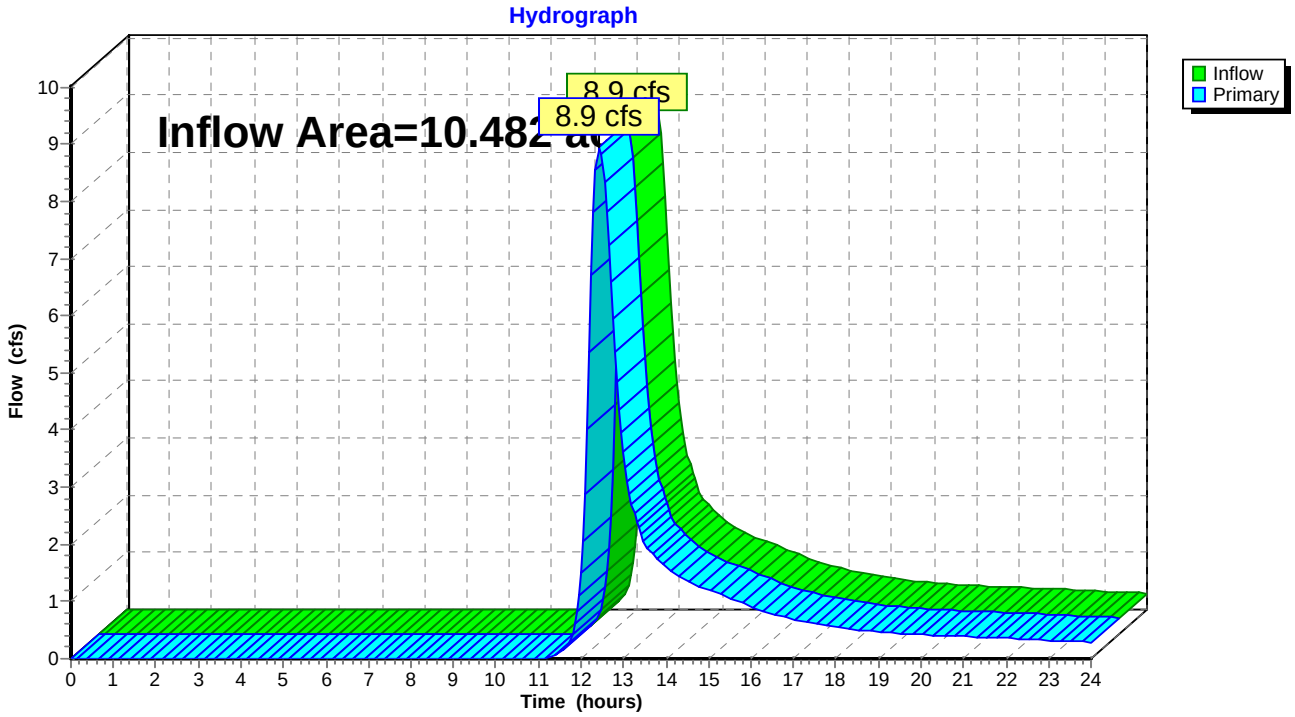


Summary for Link 6L: To Reservoir

Inflow Area = 10.482 ac, 0.18% Impervious, Inflow Depth > 1.39" for 10-Year event
Inflow = 8.9 cfs @ 12.43 hrs, Volume= 1.217 af
Primary = 8.9 cfs @ 12.43 hrs, Volume= 1.217 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 6L: To Reservoir

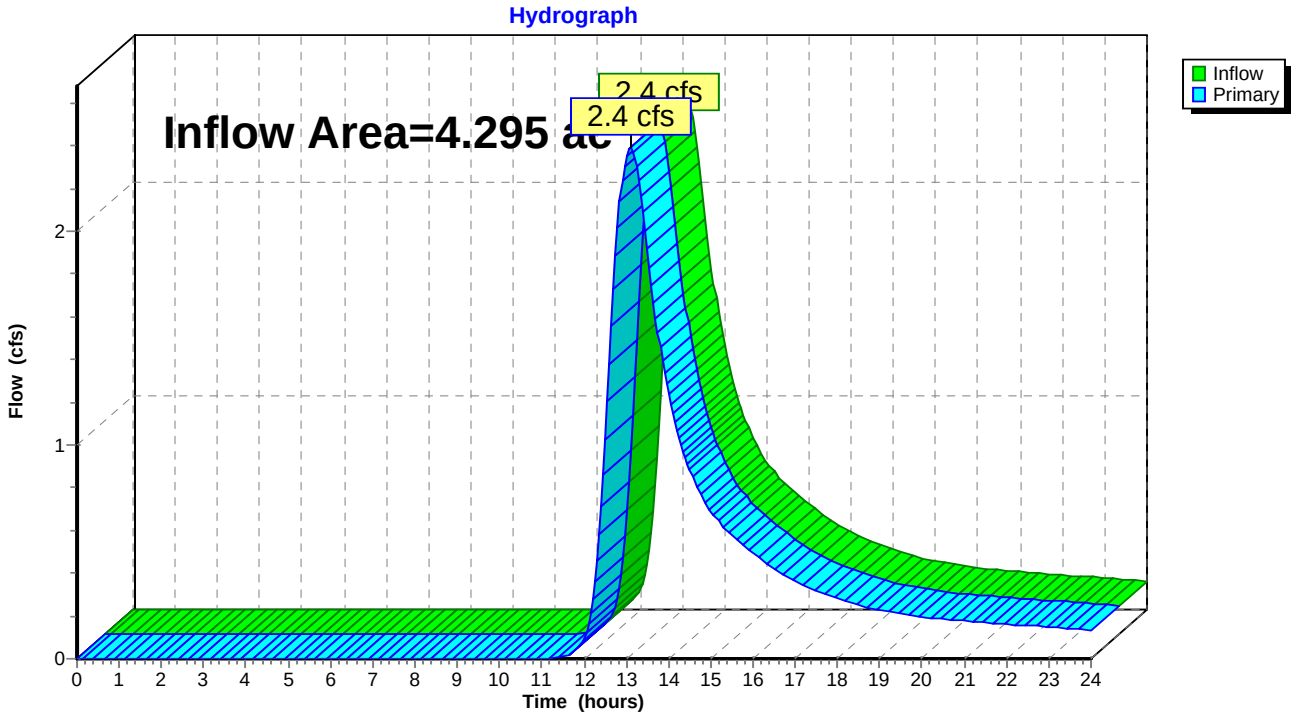


Summary for Link 7L: Off-Site Flow to South

Inflow Area = 4.295 ac, 0.22% Impervious, Inflow Depth > 1.48" for 10-Year event
Inflow = 2.4 cfs @ 13.09 hrs, Volume= 0.528 af
Primary = 2.4 cfs @ 13.09 hrs, Volume= 0.528 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 7L: Off-Site Flow to South

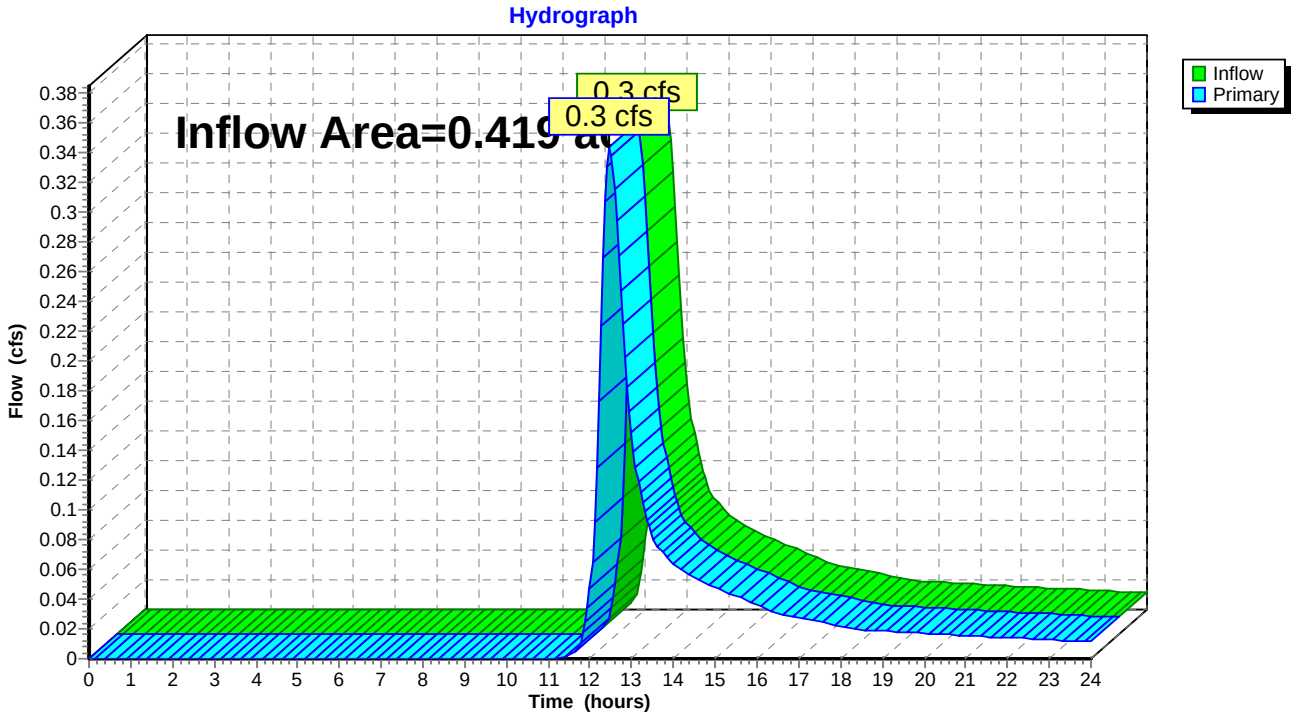


Summary for Link 8L: Off-Site Flow to East

Inflow Area = 0.419 ac, 0.01% Impervious, Inflow Depth > 1.36" for 10-Year event
Inflow = 0.3 cfs @ 12.47 hrs, Volume= 0.047 af
Primary = 0.3 cfs @ 12.47 hrs, Volume= 0.047 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 8L: Off-Site Flow to East



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Area 1 - North Runoff Area=221,024 sf 0.00% Impervious Runoff Depth>1.79"
Flow Length=596' Tc=32.4 min CN=61 Runoff=5.5 cfs 0.758 af

Subcatchment 2S: Area 1 - West Runoff Area=235,573 sf 0.34% Impervious Runoff Depth>1.88"
Flow Length=437' Tc=24.6 min CN=62 Runoff=7.0 cfs 0.846 af

Subcatchment 3S: Area 1 - East Runoff Area=174,284 sf 0.46% Impervious Runoff Depth>2.03"
Flow Length=831' Tc=42.6 min CN=64 Runoff=4.4 cfs 0.677 af

Subcatchment 4S: Area 2 - West Runoff Area=187,084 sf 0.22% Impervious Runoff Depth>1.93"
Flow Length=664' Tc=75.0 min CN=63 Runoff=3.2 cfs 0.690 af

Subcatchment 5S: Area 2 - East Runoff Area=18,251 sf 0.01% Impervious Runoff Depth>1.79"
Flow Length=214' Tc=30.4 min CN=61 Runoff=0.5 cfs 0.063 af

Link 4L: Wooded Area to East Inflow=4.4 cfs 0.677 af
Primary=4.4 cfs 0.677 af

Link 6L: To Reservoir Inflow=12.2 cfs 1.603 af
Primary=12.2 cfs 1.603 af

Link 7L: Off-Site Flow to South Inflow=3.2 cfs 0.690 af
Primary=3.2 cfs 0.690 af

Link 8L: Off-Site Flow to East Inflow=0.5 cfs 0.063 af
Primary=0.5 cfs 0.063 af

Total Runoff Area = 19.197 ac Runoff Volume = 3.033 af Average Runoff Depth = 1.90"
99.76% Pervious = 19.150 ac 0.24% Impervious = 0.046 ac

Summary for Subcatchment 1S: Area 1 - North

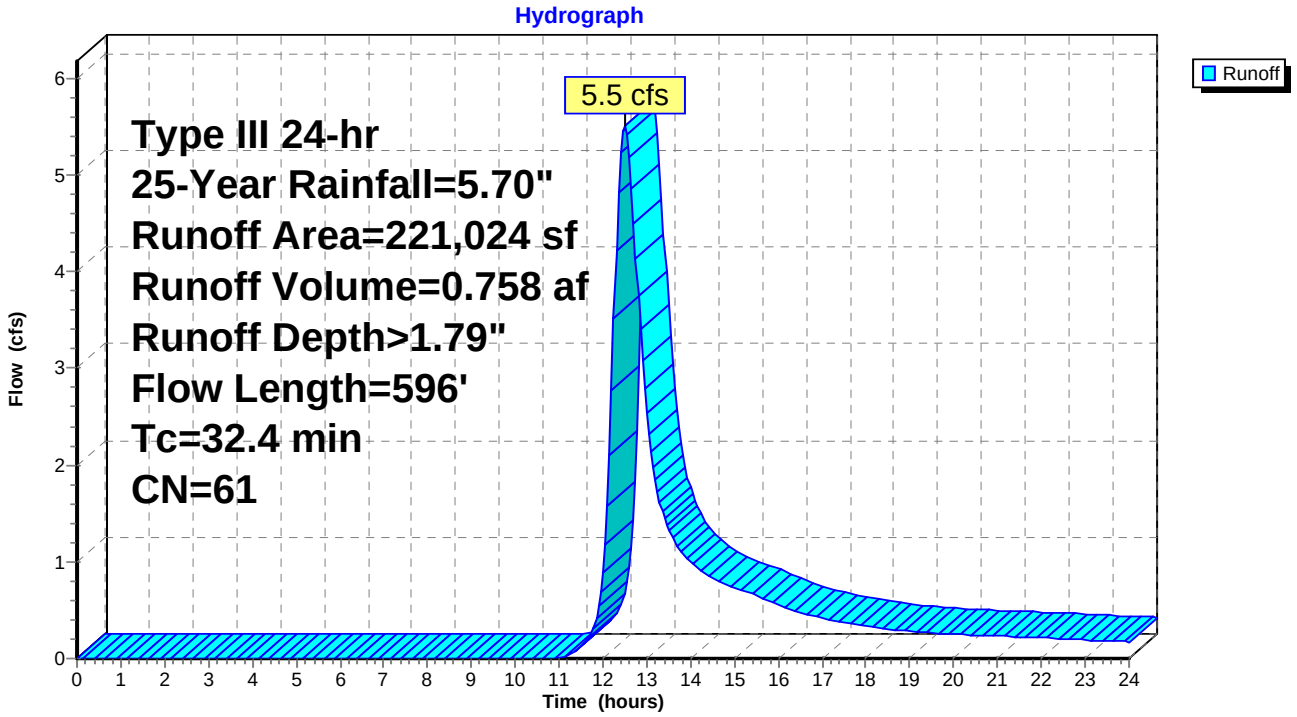
Runoff = 5.5 cfs @ 12.49 hrs, Volume= 0.758 af, Depth> 1.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.70"

	Area (sf)	CN	Description
	60,418	60	Woods, Fair, HSG B
*	160,598	61	>75% Grass cover, Solar Array Area, HSG B
*	8	98	Solar Array Posts, HSG B
	221,024	61	Weighted Average
	221,016		100.00% Pervious Area
	8		0.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.5	100	0.0177	0.11		**Sheet Flow, Grass - Solar Array Area** Grass: Dense n= 0.240 P2= 3.40"
1.0	40	0.0085	0.65		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
0.3	32	0.0625	1.75		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
2.9	143	0.0140	0.83		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
5.2	211	0.0095	0.68		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
0.4	31	0.0323	1.26		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
2.4	14	0.0323	0.10		**Sheet Flow, Grass (Flow disrupted by stone check dam)** Grass: Dense n= 0.240 P2= 3.40"
5.7	25	0.0323	0.07		**Sheet Flow, Woods (Flow disrupted by stone check dam)** Woods: Light underbrush n= 0.400 P2= 3.40"
32.4	596	Total			

Subcatchment 1S: Area 1 - North



Summary for Subcatchment 2S: Area 1 - West

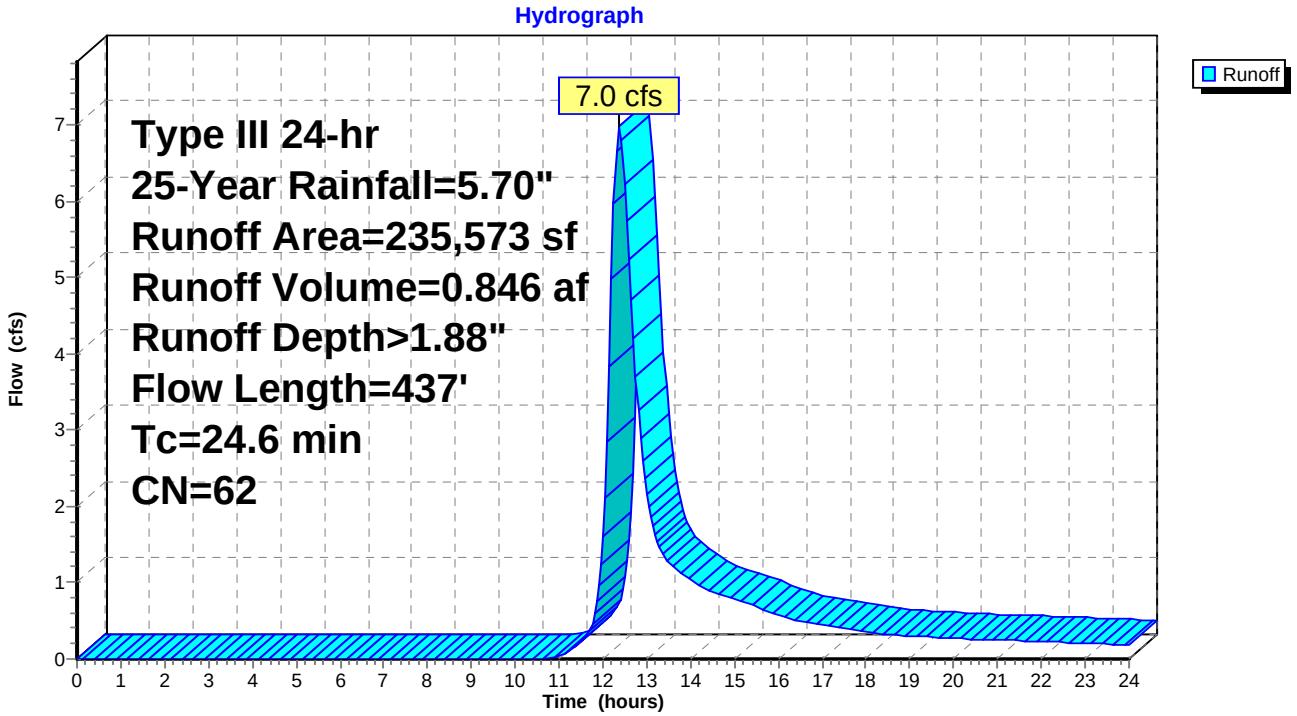
Runoff = 7.0 cfs @ 12.37 hrs, Volume= 0.846 af, Depth> 1.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.70"

	Area (sf)	CN	Description
*	226,231	61	>75% Grass cover, Solar Array Area, HSG B
	8,538	85	Gravel roads, HSG B
*	4	98	Solar Array Racking Posts, HSG B
*	800	98	Concrete Equipment Pad, HSG B
	235,573	62	Weighted Average
	234,769		99.66% Pervious Area
	804		0.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.0	100	0.0120	0.10		**Sheet Flow, Grass - Solar Array Area** Grass: Dense n= 0.240 P2= 3.40"
7.5	312	0.0099	0.70		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
0.1	25	0.1581	2.78		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
24.6	437	Total			

Subcatchment 2S: Area 1 - West



Summary for Subcatchment 3S: Area 1 - East

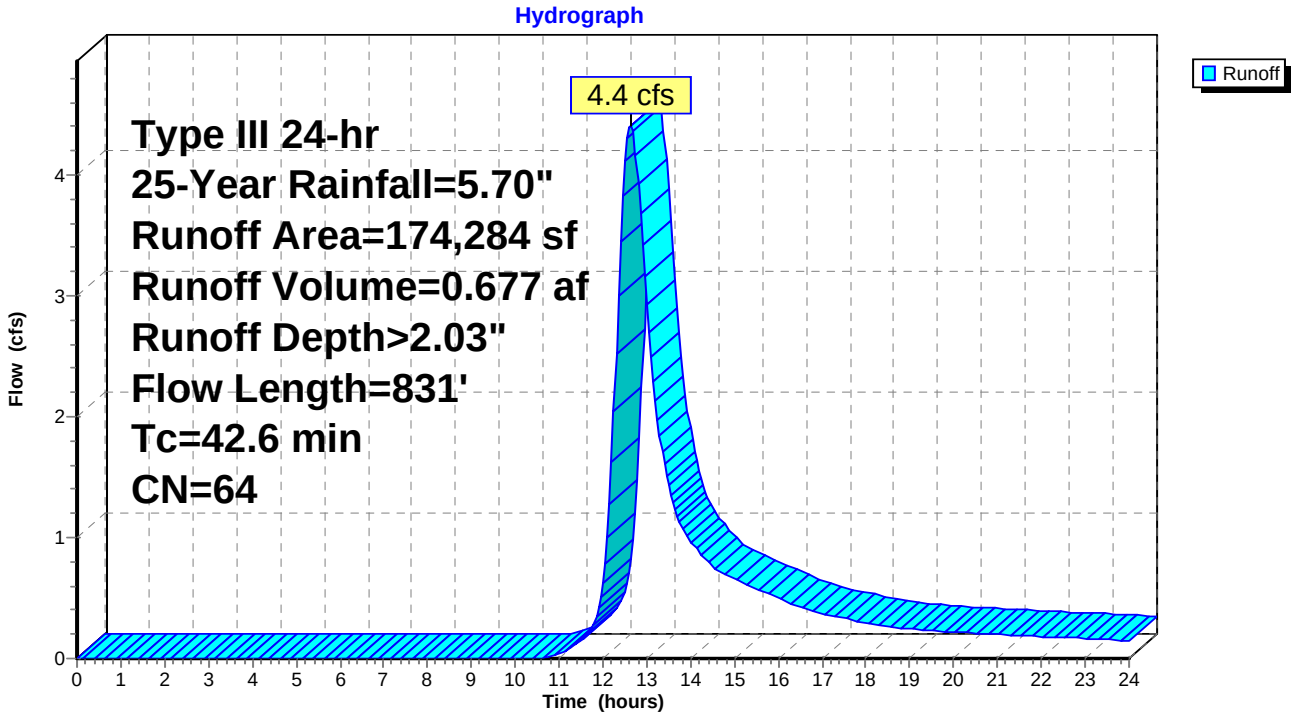
Runoff = 4.4 cfs @ 12.63 hrs, Volume= 0.677 af, Depth> 2.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.70"

	Area (sf)	CN	Description
	19,602	85	Gravel roads, HSG B
*	153,878	61	>75% Grass cover, Solar Array Area, HSG B
*	4	98	Solar Array Racking Posts, HSG B
*	800	98	Concrete Equipment Pads, HSG B
	174,284	64	Weighted Average
	173,480		99.54% Pervious Area
	804		0.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.1	100	0.0090	0.09		**Sheet Flow, Grass - Solar Array Area** Grass: Dense n= 0.240 P2= 3.40"
7.1	174	0.0034	0.41		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
16.3	526	0.0059	0.54		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
0.1	31	0.0742	4.39		**Shallow Concentrated Flow, Grass/Gravel** Unpaved Kv= 16.1 fps
42.6	831	Total			

Subcatchment 3S: Area 1 - East



Summary for Subcatchment 4S: Area 2 - West

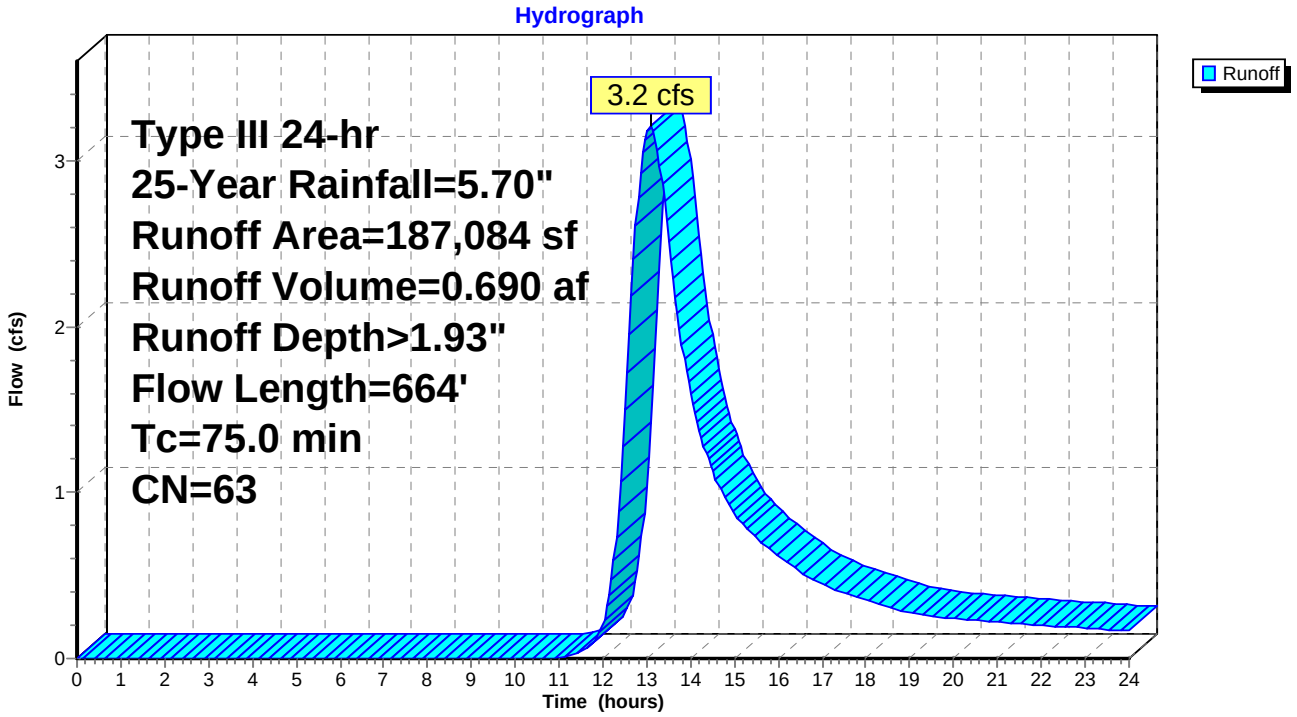
Runoff = 3.2 cfs @ 13.08 hrs, Volume= 0.690 af, Depth> 1.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.70"

	Area (sf)	CN	Description
	10,060	60	Woods, Fair, HSG B
*	161,719	61	>75% Grass cover, Solar Array Area, HSG B
	14,898	85	Gravel roads, HSG B
*	7	98	Solar Array Racking Posts, HSG B
*	400	98	Concrete Equipment Pad, HSG B
	187,084	63	Weighted Average
	186,677		99.78% Pervious Area
	407		0.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0	100	0.0080	0.08		**Sheet Flow, Grass - Solar Array Area** Grass: Dense n= 0.240 P2= 3.40"
1.3	86	0.0233	1.07		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
7.5	235	0.0055	0.52		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
13.3	177	0.0010	0.22		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
32.9	66	0.0010	0.03		**Sheet Flow, Grass (Flow disrupted by stone check dam)** Grass: Dense n= 0.240 P2= 3.40"
75.0	664	Total			

Subcatchment 4S: Area 2 - West



Summary for Subcatchment 5S: Area 2 - East

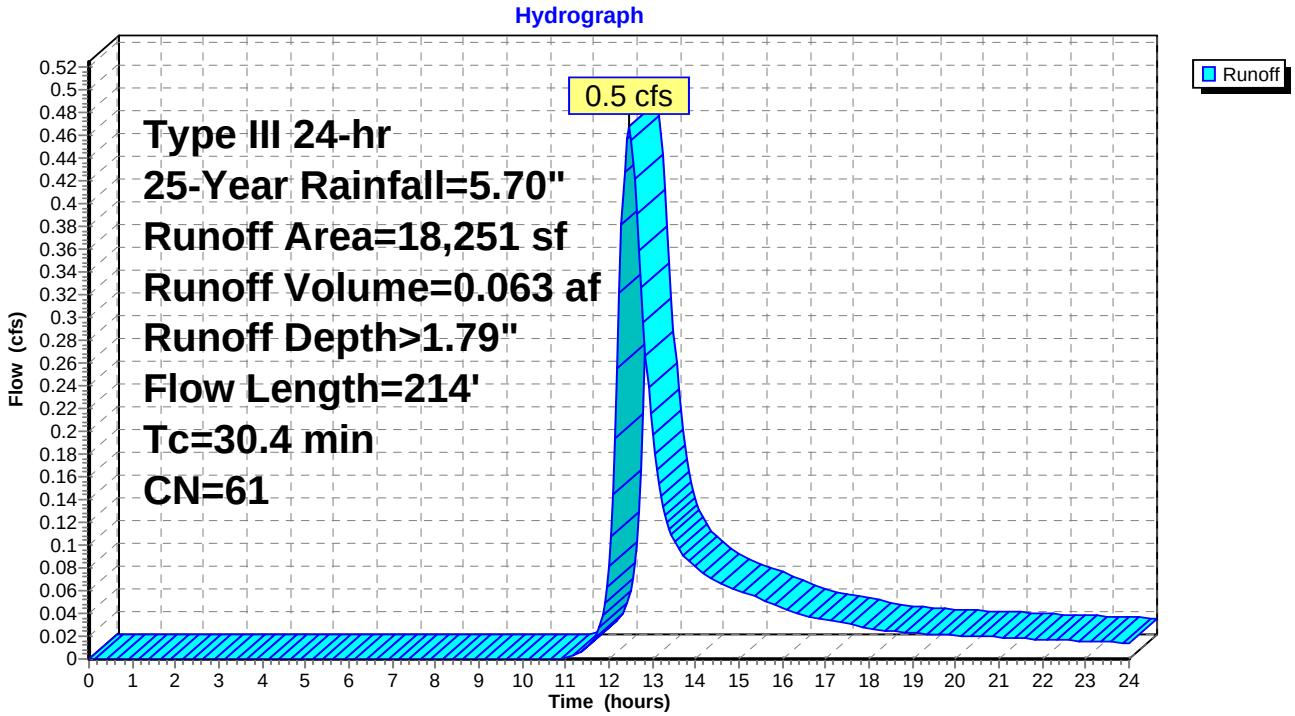
Runoff = 0.5 cfs @ 12.46 hrs, Volume= 0.063 af, Depth> 1.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.70"

	Area (sf)	CN	Description
*	18,250	61	>75% Grass cover, Solar Array Area, HSG B
*	1	98	Solar Array Racking Posts, HSG B
	18,251	61	Weighted Average
	18,250		99.99% Pervious Area
	1		0.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.2	58	0.0034	0.05		**Sheet Flow, Grass - Solar Array Area** Grass: Dense n= 0.240 P2= 3.40"
8.5	42	0.0119	0.08		**Sheet Flow, Grass - Solar Array Area** Grass: Dense n= 0.240 P2= 3.40"
2.8	86	0.0105	0.51		**Shallow Concentrated Flow, Grass - Solar Array Area** Woodland Kv= 5.0 fps
0.9	28	0.0050	0.49		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
30.4	214	Total			

Subcatchment 5S: Area 2 - East

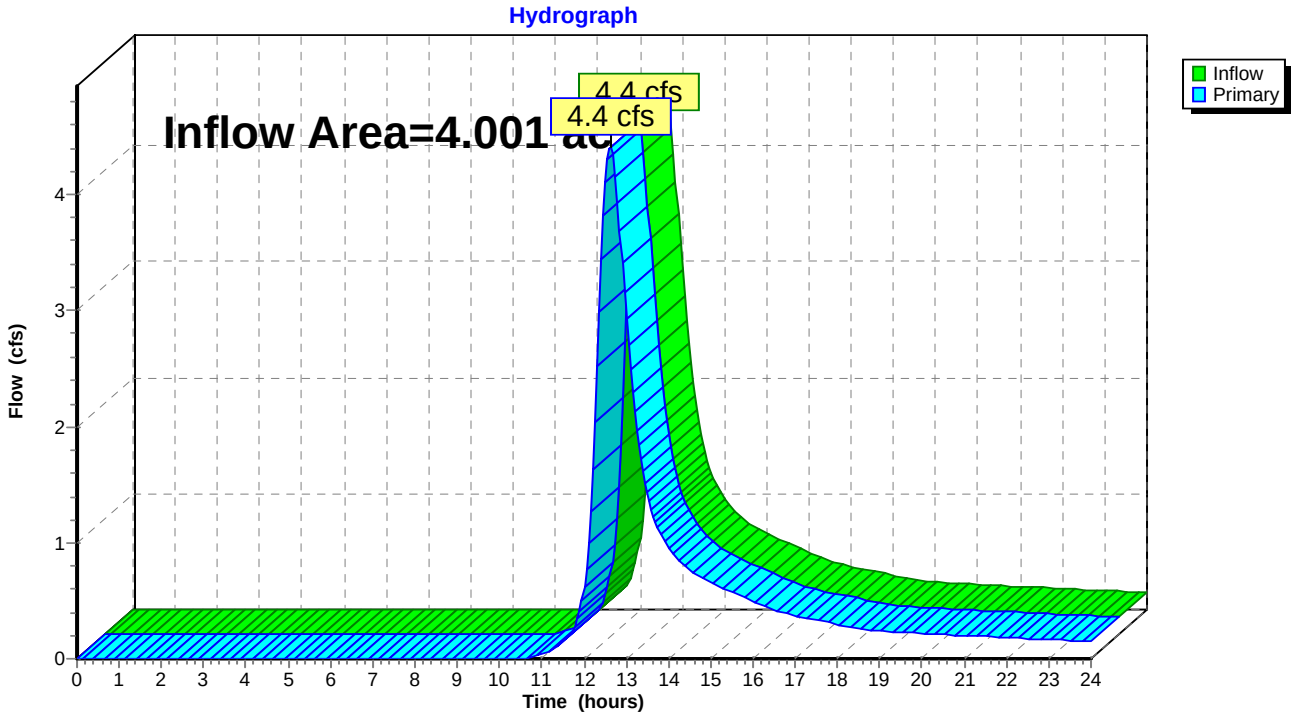


Summary for Link 4L: Wooded Area to East

Inflow Area = 4.001 ac, 0.46% Impervious, Inflow Depth > 2.03" for 25-Year event
Inflow = 4.4 cfs @ 12.63 hrs, Volume= 0.677 af
Primary = 4.4 cfs @ 12.63 hrs, Volume= 0.677 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 4L: Wooded Area to East

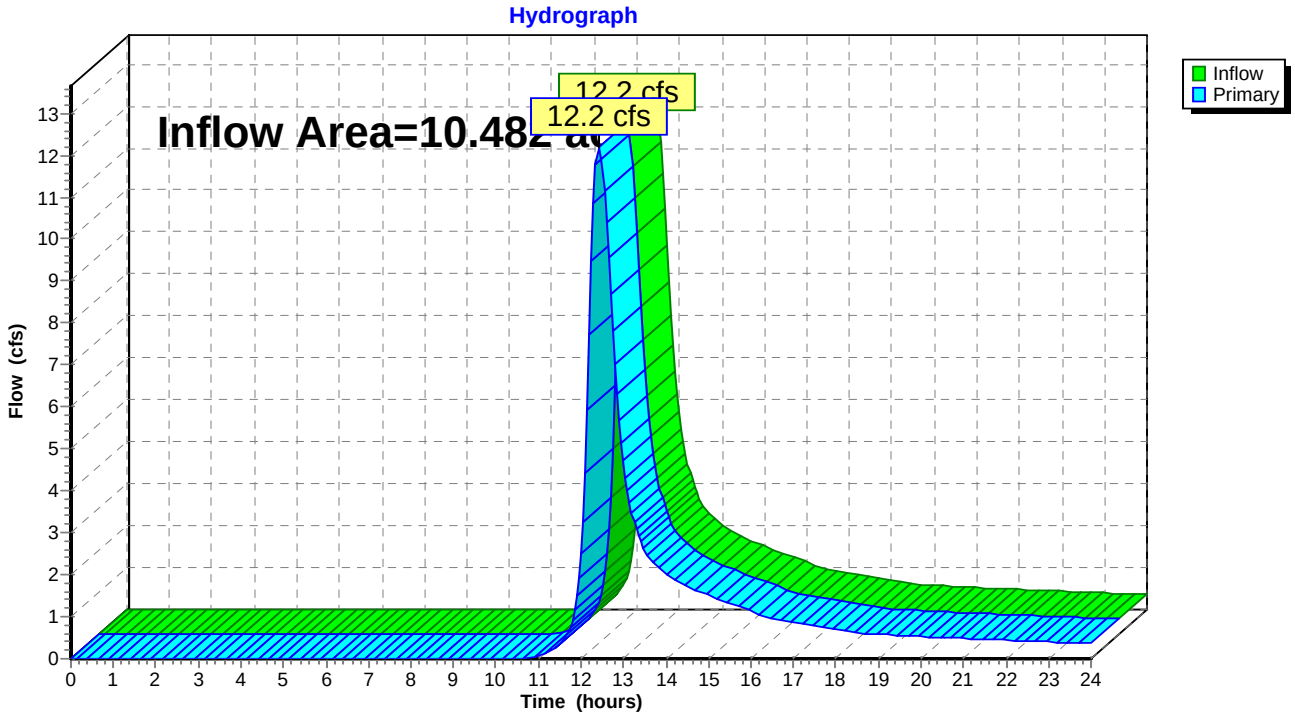


Summary for Link 6L: To Reservoir

Inflow Area = 10.482 ac, 0.18% Impervious, Inflow Depth > 1.84" for 25-Year event
Inflow = 12.2 cfs @ 12.42 hrs, Volume= 1.603 af
Primary = 12.2 cfs @ 12.42 hrs, Volume= 1.603 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 6L: To Reservoir

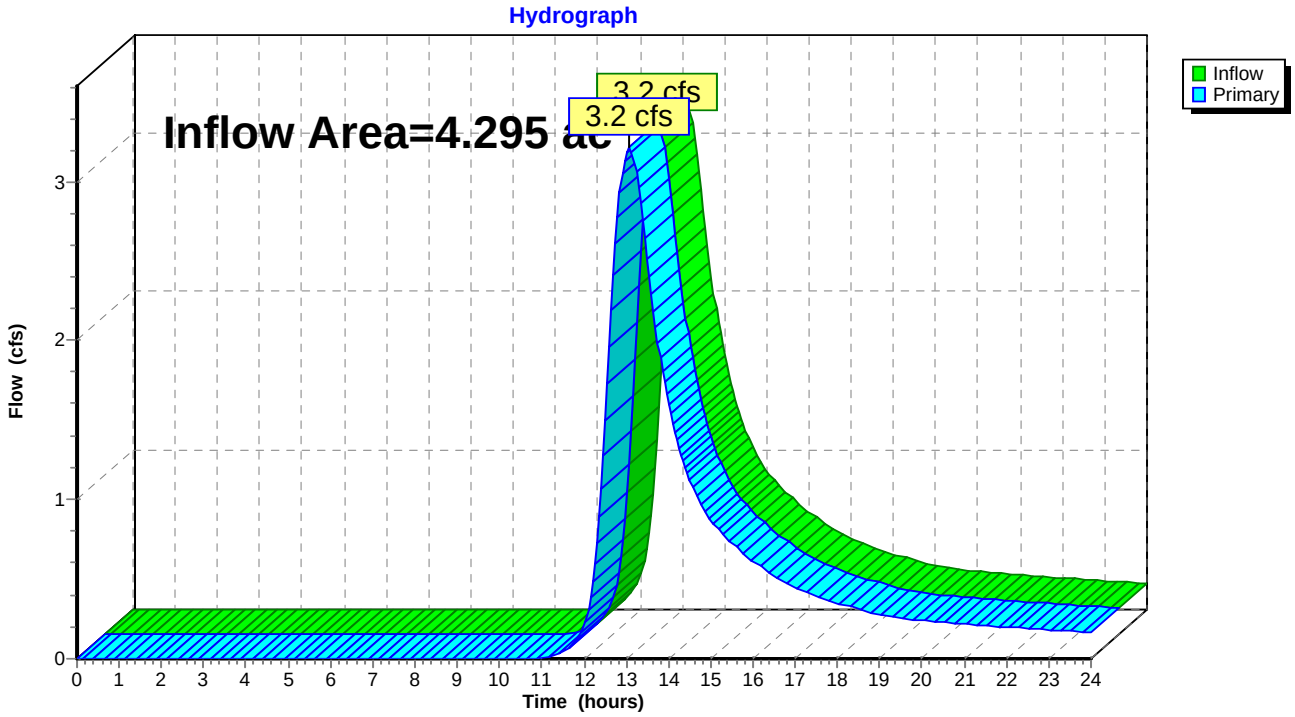


Summary for Link 7L: Off-Site Flow to South

Inflow Area = 4.295 ac, 0.22% Impervious, Inflow Depth > 1.93" for 25-Year event
Inflow = 3.2 cfs @ 13.08 hrs, Volume= 0.690 af
Primary = 3.2 cfs @ 13.08 hrs, Volume= 0.690 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 7L: Off-Site Flow to South

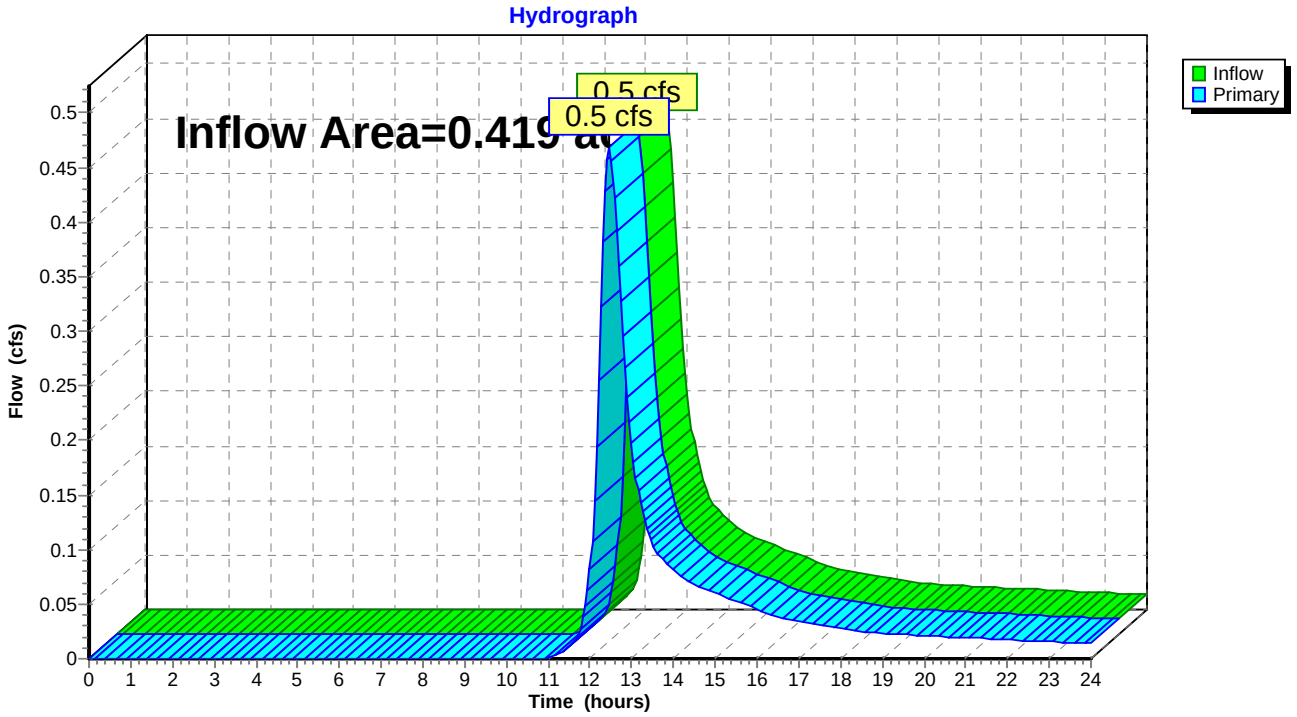


Summary for Link 8L: Off-Site Flow to East

Inflow Area = 0.419 ac, 0.01% Impervious, Inflow Depth > 1.79" for 25-Year event
Inflow = 0.5 cfs @ 12.46 hrs, Volume= 0.063 af
Primary = 0.5 cfs @ 12.46 hrs, Volume= 0.063 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 8L: Off-Site Flow to East



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Area 1 - North Runoff Area=221,024 sf 0.00% Impervious Runoff Depth>2.19"
Flow Length=596' Tc=32.4 min CN=61 Runoff=6.9 cfs 0.926 af

Subcatchment 2S: Area 1 - West Runoff Area=235,573 sf 0.34% Impervious Runoff Depth>2.28"
Flow Length=437' Tc=24.6 min CN=62 Runoff=8.7 cfs 1.030 af

Subcatchment 3S: Area 1 - East Runoff Area=174,284 sf 0.46% Impervious Runoff Depth>2.45"
Flow Length=831' Tc=42.6 min CN=64 Runoff=5.4 cfs 0.818 af

Subcatchment 4S: Area 2 - West Runoff Area=187,084 sf 0.22% Impervious Runoff Depth>2.34"
Flow Length=664' Tc=75.0 min CN=63 Runoff=4.0 cfs 0.838 af

Subcatchment 5S: Area 2 - East Runoff Area=18,251 sf 0.01% Impervious Runoff Depth>2.19"
Flow Length=214' Tc=30.4 min CN=61 Runoff=0.6 cfs 0.077 af

Link 4L: Wooded Area to East Inflow=5.4 cfs 0.818 af
Primary=5.4 cfs 0.818 af

Link 6L: To Reservoir Inflow=15.1 cfs 1.956 af
Primary=15.1 cfs 1.956 af

Link 7L: Off-Site Flow to South Inflow=4.0 cfs 0.838 af
Primary=4.0 cfs 0.838 af

Link 8L: Off-Site Flow to East Inflow=0.6 cfs 0.077 af
Primary=0.6 cfs 0.077 af

Total Runoff Area = 19.197 ac Runoff Volume = 3.688 af Average Runoff Depth = 2.31"
99.76% Pervious = 19.150 ac 0.24% Impervious = 0.046 ac

Summary for Subcatchment 1S: Area 1 - North

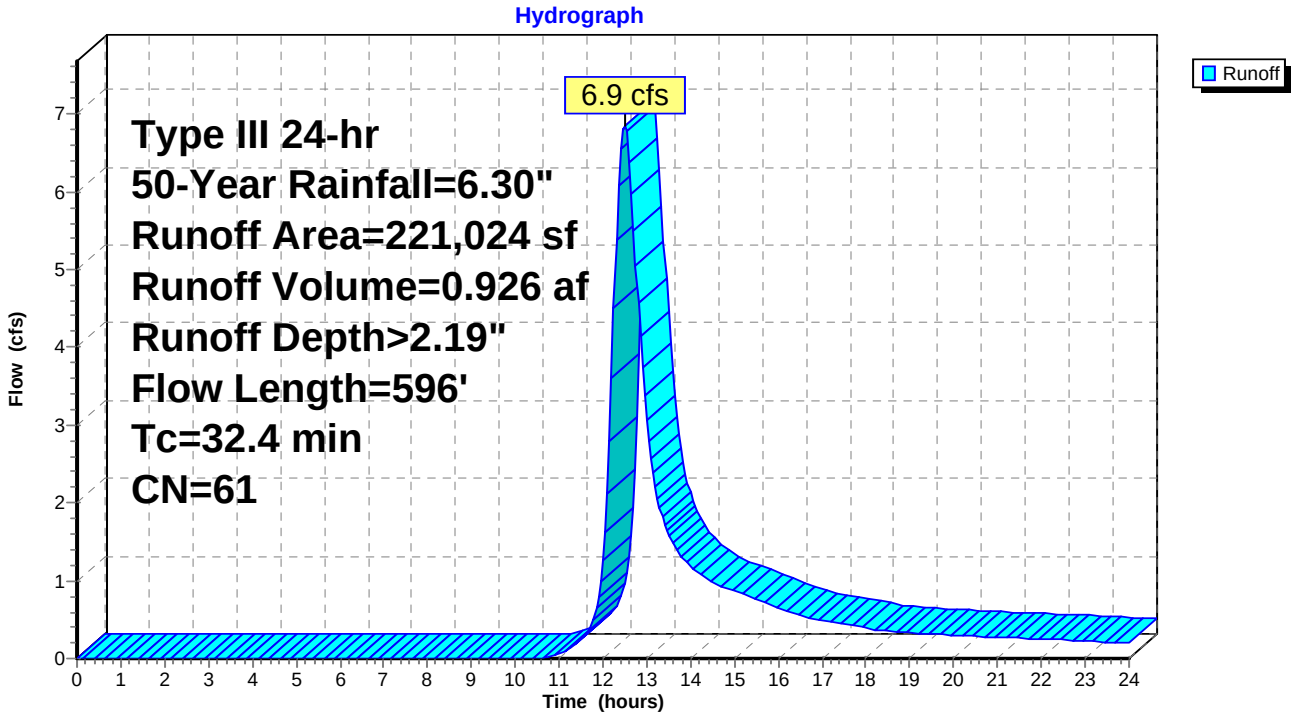
Runoff = 6.9 cfs @ 12.49 hrs, Volume= 0.926 af, Depth> 2.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year Rainfall=6.30"

	Area (sf)	CN	Description
	60,418	60	Woods, Fair, HSG B
*	160,598	61	>75% Grass cover, Solar Array Area, HSG B
*	8	98	Solar Array Posts, HSG B
	221,024	61	Weighted Average
	221,016		100.00% Pervious Area
	8		0.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.5	100	0.0177	0.11		**Sheet Flow, Grass - Solar Array Area** Grass: Dense n= 0.240 P2= 3.40"
1.0	40	0.0085	0.65		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
0.3	32	0.0625	1.75		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
2.9	143	0.0140	0.83		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
5.2	211	0.0095	0.68		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
0.4	31	0.0323	1.26		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
2.4	14	0.0323	0.10		**Sheet Flow, Grass (Flow disrupted by stone check dam)** Grass: Dense n= 0.240 P2= 3.40"
5.7	25	0.0323	0.07		**Sheet Flow, Woods (Flow disrupted by stone check dam)** Woods: Light underbrush n= 0.400 P2= 3.40"
32.4	596	Total			

Subcatchment 1S: Area 1 - North



Summary for Subcatchment 2S: Area 1 - West

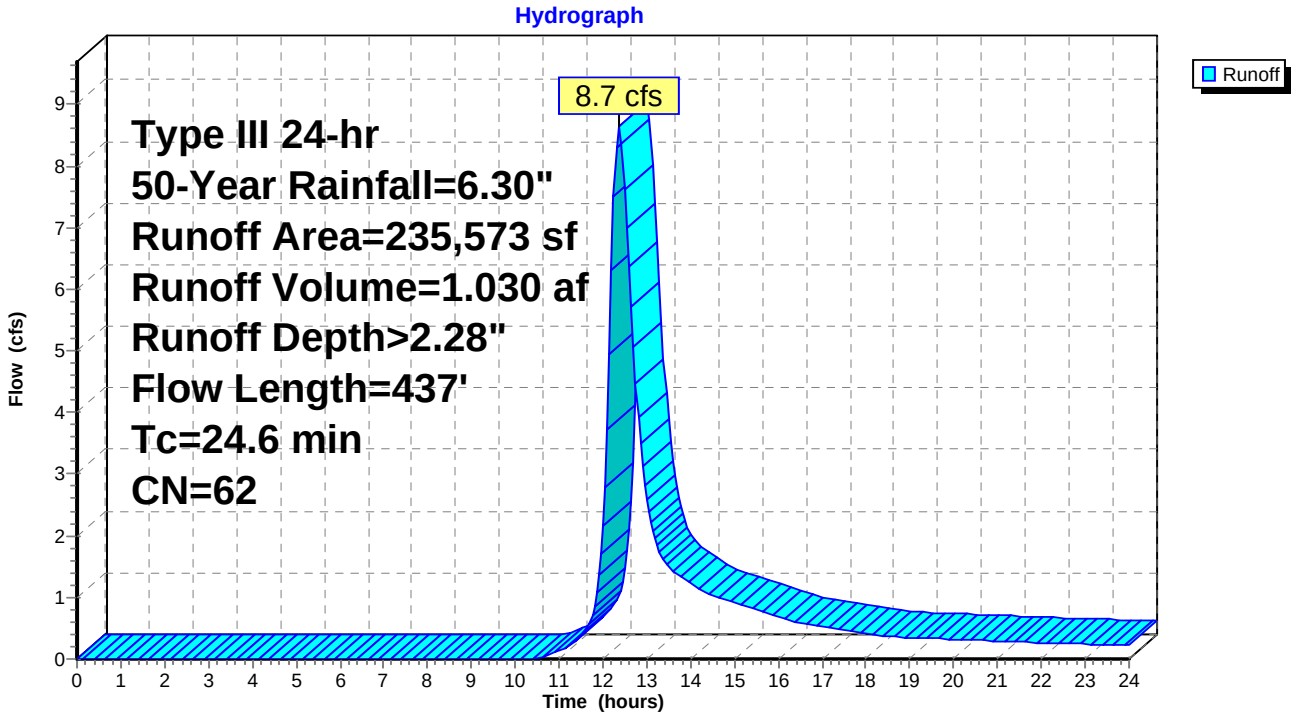
Runoff = 8.7 cfs @ 12.37 hrs, Volume= 1.030 af, Depth> 2.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year Rainfall=6.30"

	Area (sf)	CN	Description
*	226,231	61	>75% Grass cover, Solar Array Area, HSG B
	8,538	85	Gravel roads, HSG B
*	4	98	Solar Array Racking Posts, HSG B
*	800	98	Concrete Equipment Pad, HSG B
	235,573	62	Weighted Average
	234,769		99.66% Pervious Area
	804		0.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.0	100	0.0120	0.10		**Sheet Flow, Grass - Solar Array Area** Grass: Dense n= 0.240 P2= 3.40"
7.5	312	0.0099	0.70		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
0.1	25	0.1581	2.78		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
24.6	437	Total			

Subcatchment 2S: Area 1 - West



Summary for Subcatchment 3S: Area 1 - East

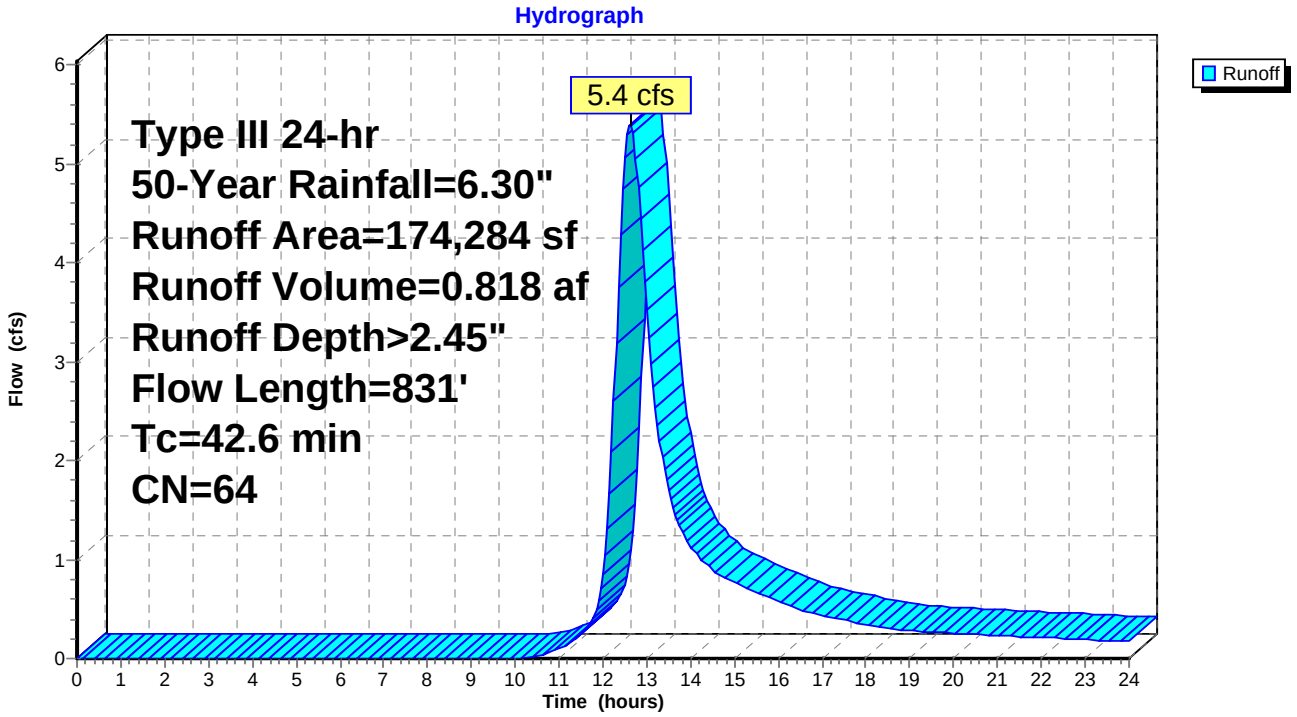
Runoff = 5.4 cfs @ 12.62 hrs, Volume= 0.818 af, Depth> 2.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year Rainfall=6.30"

	Area (sf)	CN	Description
	19,602	85	Gravel roads, HSG B
*	153,878	61	>75% Grass cover, Solar Array Area, HSG B
*	4	98	Solar Array Racking Posts, HSG B
*	800	98	Concrete Equipment Pads, HSG B
	174,284	64	Weighted Average
	173,480		99.54% Pervious Area
	804		0.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.1	100	0.0090	0.09		**Sheet Flow, Grass - Solar Array Area** Grass: Dense n= 0.240 P2= 3.40"
7.1	174	0.0034	0.41		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
16.3	526	0.0059	0.54		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
0.1	31	0.0742	4.39		**Shallow Concentrated Flow, Grass/Gravel** Unpaved Kv= 16.1 fps
42.6	831	Total			

Subcatchment 3S: Area 1 - East



Summary for Subcatchment 4S: Area 2 - West

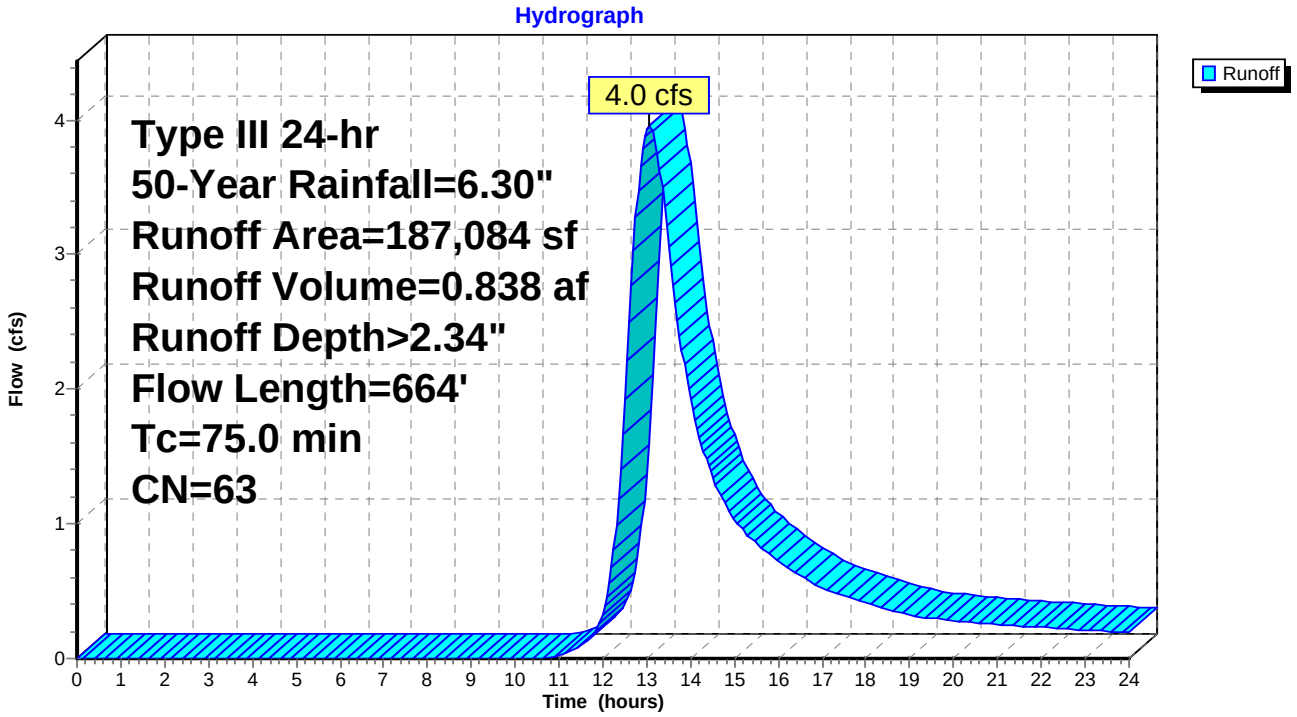
Runoff = 4.0 cfs @ 13.07 hrs, Volume= 0.838 af, Depth> 2.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year Rainfall=6.30"

	Area (sf)	CN	Description
	10,060	60	Woods, Fair, HSG B
*	161,719	61	>75% Grass cover, Solar Array Area, HSG B
	14,898	85	Gravel roads, HSG B
*	7	98	Solar Array Racking Posts, HSG B
*	400	98	Concrete Equipment Pad, HSG B
	187,084	63	Weighted Average
	186,677		99.78% Pervious Area
	407		0.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0	100	0.0080	0.08		**Sheet Flow, Grass - Solar Array Area** Grass: Dense n= 0.240 P2= 3.40"
1.3	86	0.0233	1.07		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
7.5	235	0.0055	0.52		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
13.3	177	0.0010	0.22		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
32.9	66	0.0010	0.03		**Sheet Flow, Grass (Flow disrupted by stone check dam)** Grass: Dense n= 0.240 P2= 3.40"
75.0	664	Total			

Subcatchment 4S: Area 2 - West



Summary for Subcatchment 5S: Area 2 - East

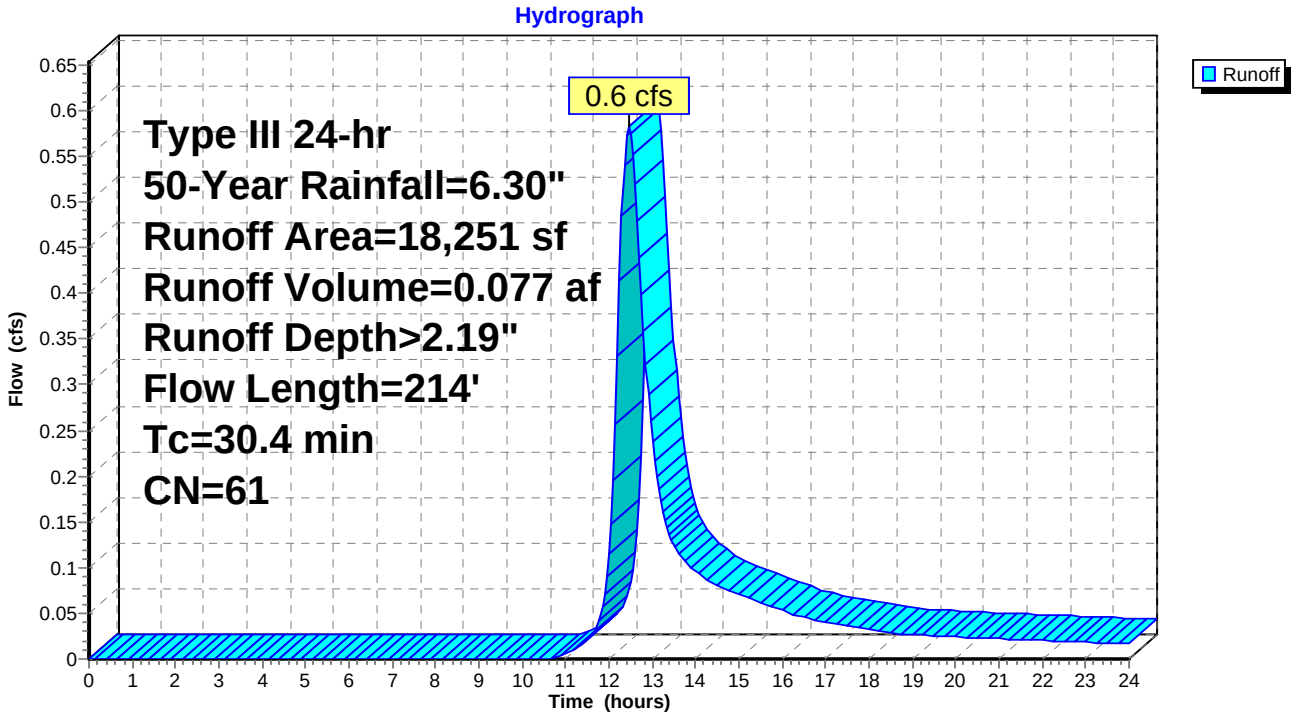
Runoff = 0.6 cfs @ 12.45 hrs, Volume= 0.077 af, Depth> 2.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year Rainfall=6.30"

	Area (sf)	CN	Description
*	18,250	61	>75% Grass cover, Solar Array Area, HSG B
*	1	98	Solar Array Racking Posts, HSG B
	18,251	61	Weighted Average
	18,250		99.99% Pervious Area
	1		0.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.2	58	0.0034	0.05		**Sheet Flow, Grass - Solar Array Area** Grass: Dense n= 0.240 P2= 3.40"
8.5	42	0.0119	0.08		**Sheet Flow, Grass - Solar Array Area** Grass: Dense n= 0.240 P2= 3.40"
2.8	86	0.0105	0.51		**Shallow Concentrated Flow, Grass - Solar Array Area** Woodland Kv= 5.0 fps
0.9	28	0.0050	0.49		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
30.4	214	Total			

Subcatchment 5S: Area 2 - East

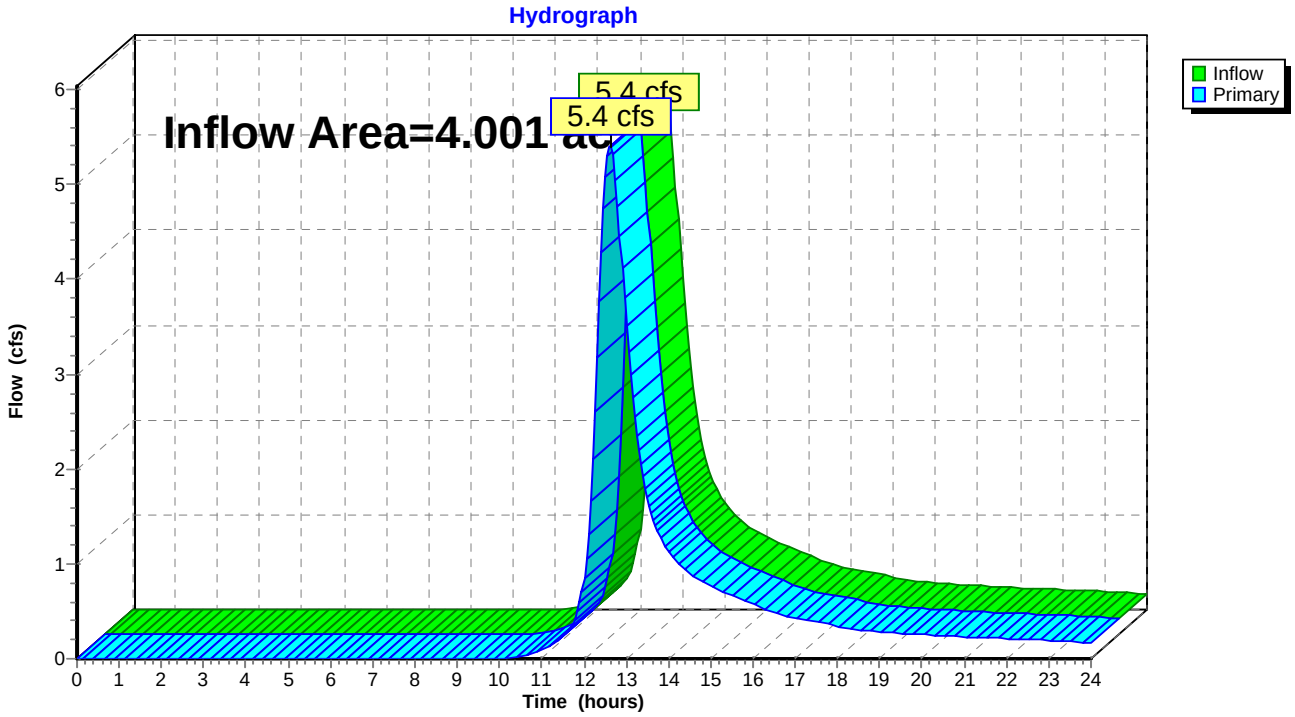


Summary for Link 4L: Wooded Area to East

Inflow Area = 4.001 ac, 0.46% Impervious, Inflow Depth > 2.45" for 50-Year event
Inflow = 5.4 cfs @ 12.62 hrs, Volume= 0.818 af
Primary = 5.4 cfs @ 12.62 hrs, Volume= 0.818 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 4L: Wooded Area to East

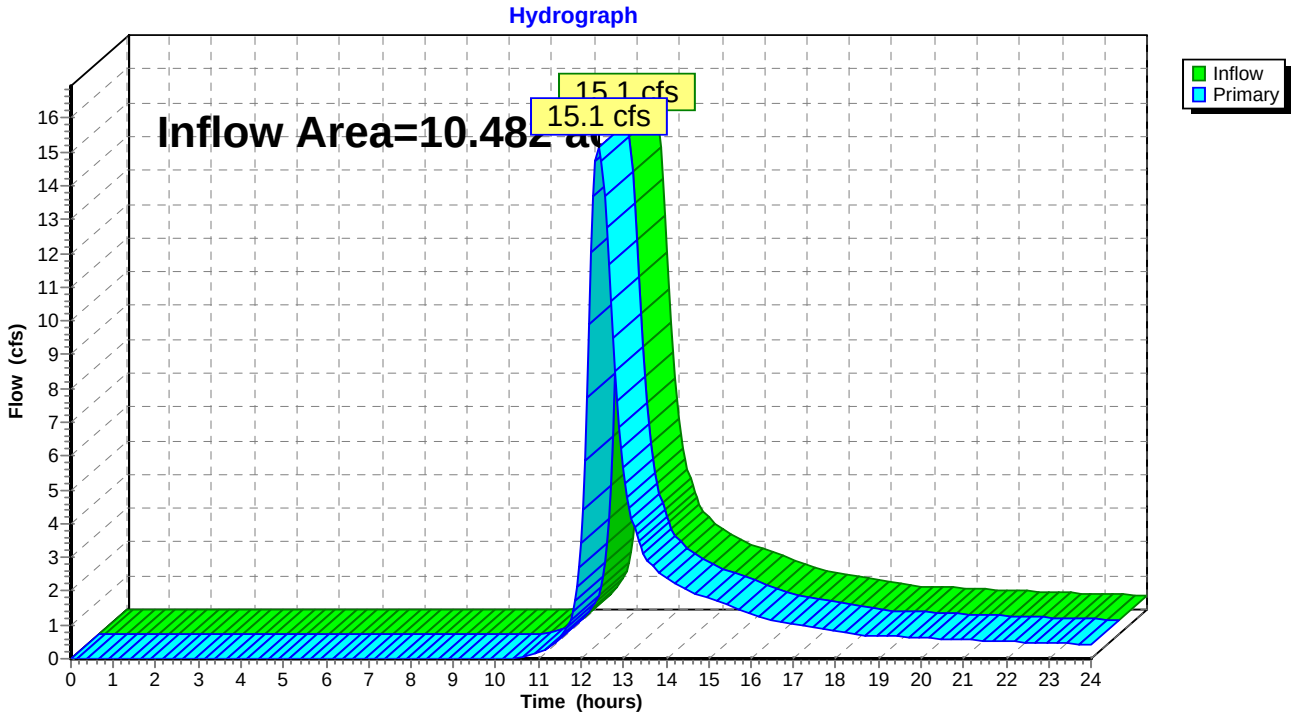


Summary for Link 6L: To Reservoir

Inflow Area = 10.482 ac, 0.18% Impervious, Inflow Depth > 2.24" for 50-Year event
Inflow = 15.1 cfs @ 12.41 hrs, Volume= 1.956 af
Primary = 15.1 cfs @ 12.41 hrs, Volume= 1.956 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 6L: To Reservoir

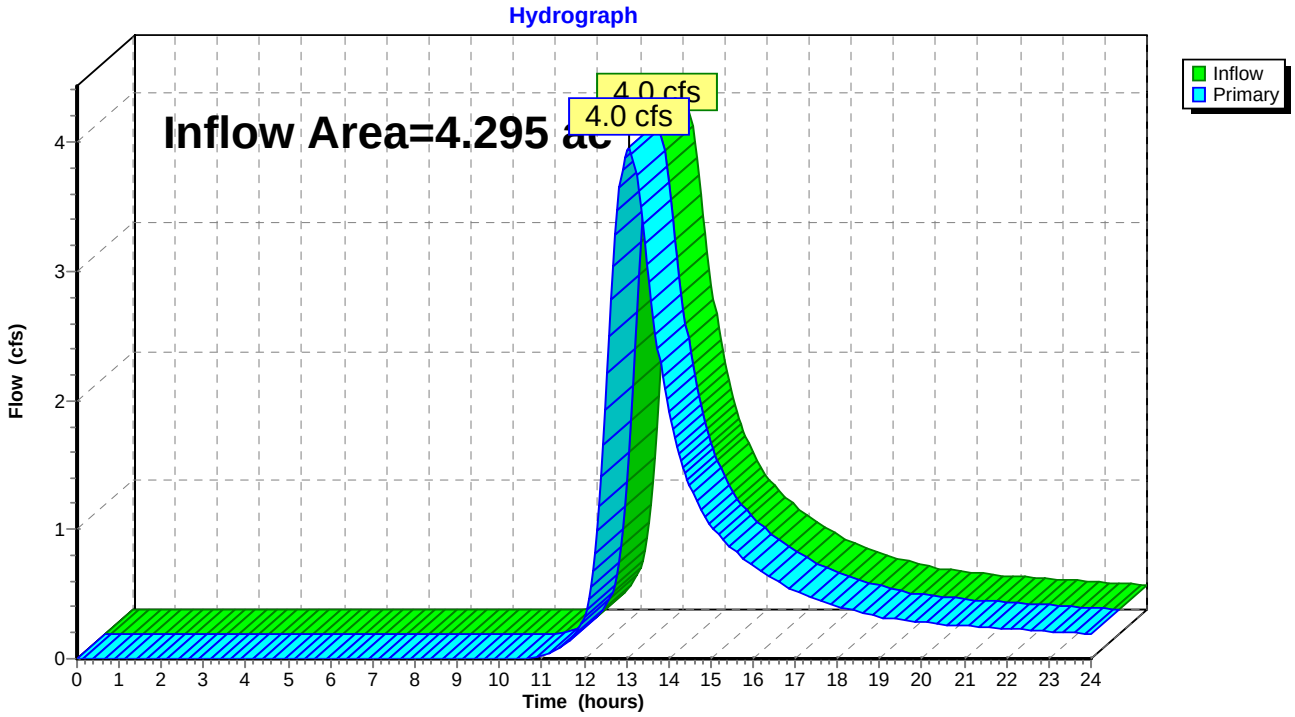


Summary for Link 7L: Off-Site Flow to South

Inflow Area = 4.295 ac, 0.22% Impervious, Inflow Depth > 2.34" for 50-Year event
Inflow = 4.0 cfs @ 13.07 hrs, Volume= 0.838 af
Primary = 4.0 cfs @ 13.07 hrs, Volume= 0.838 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 7L: Off-Site Flow to South

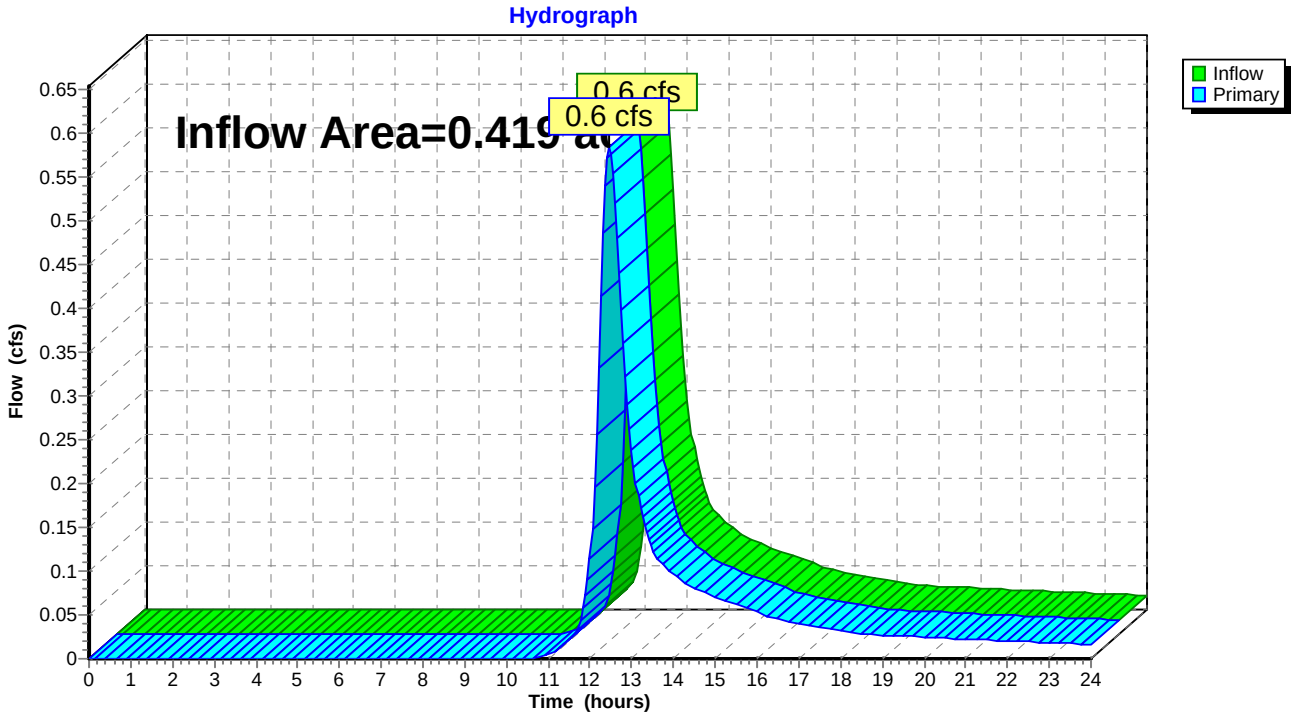


Summary for Link 8L: Off-Site Flow to East

Inflow Area = 0.419 ac, 0.01% Impervious, Inflow Depth > 2.19" for 50-Year event
Inflow = 0.6 cfs @ 12.45 hrs, Volume= 0.077 af
Primary = 0.6 cfs @ 12.45 hrs, Volume= 0.077 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 8L: Off-Site Flow to East



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Area 1 - North Runoff Area=221,024 sf 0.00% Impervious Runoff Depth>2.75"
Flow Length=596' Tc=32.4 min CN=61 Runoff=8.8 cfs 1.164 af

Subcatchment 2S: Area 1 - West Runoff Area=235,573 sf 0.34% Impervious Runoff Depth>2.86"
Flow Length=437' Tc=24.6 min CN=62 Runoff=11.0 cfs 1.288 af

Subcatchment 3S: Area 1 - East Runoff Area=174,284 sf 0.46% Impervious Runoff Depth>3.05"
Flow Length=831' Tc=42.6 min CN=64 Runoff=6.8 cfs 1.016 af

Subcatchment 4S: Area 2 - West Runoff Area=187,084 sf 0.22% Impervious Runoff Depth>2.92"
Flow Length=664' Tc=75.0 min CN=63 Runoff=5.0 cfs 1.045 af

Subcatchment 5S: Area 2 - East Runoff Area=18,251 sf 0.01% Impervious Runoff Depth>2.75"
Flow Length=214' Tc=30.4 min CN=61 Runoff=0.7 cfs 0.096 af

Link 4L: Wooded Area to East Inflow=6.8 cfs 1.016 af
Primary=6.8 cfs 1.016 af

Link 6L: To Reservoir Inflow=19.3 cfs 2.452 af
Primary=19.3 cfs 2.452 af

Link 7L: Off-Site Flow to South Inflow=5.0 cfs 1.045 af
Primary=5.0 cfs 1.045 af

Link 8L: Off-Site Flow to East Inflow=0.7 cfs 0.096 af
Primary=0.7 cfs 0.096 af

Total Runoff Area = 19.197 ac Runoff Volume = 4.609 af Average Runoff Depth = 2.88"
99.76% Pervious = 19.150 ac 0.24% Impervious = 0.046 ac

Summary for Subcatchment 1S: Area 1 - North

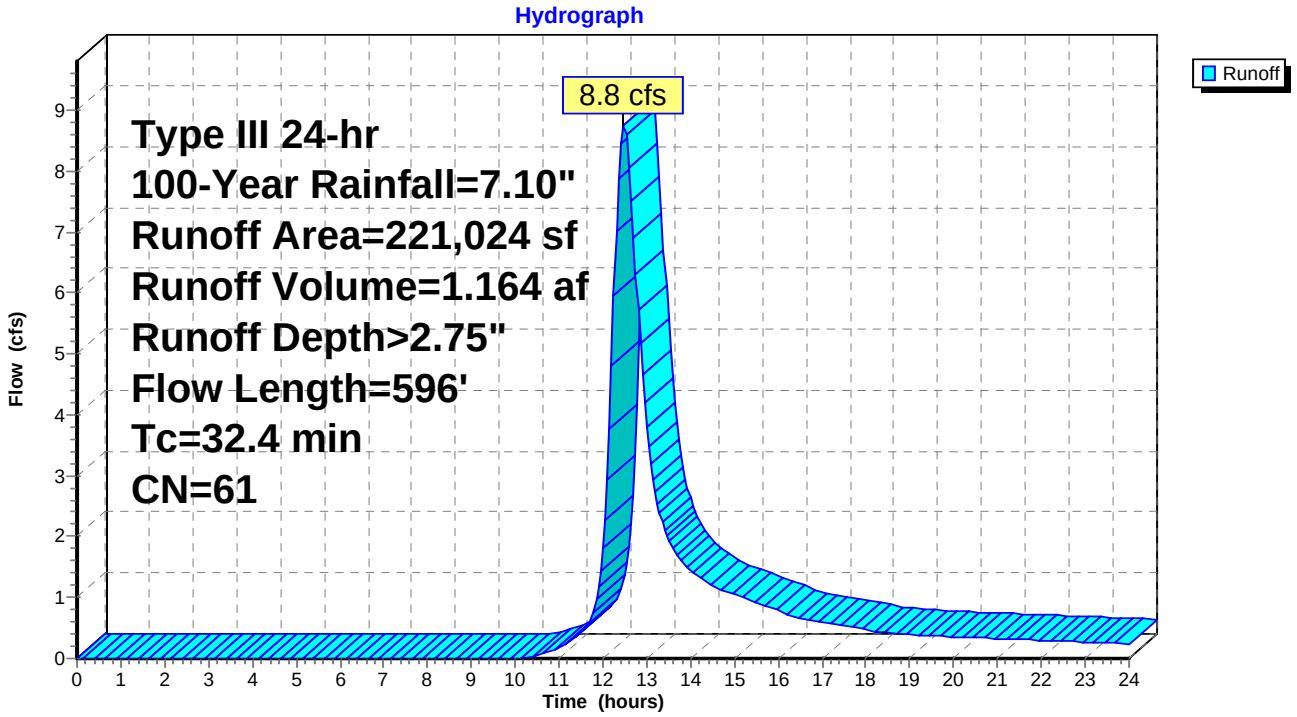
Runoff = 8.8 cfs @ 12.48 hrs, Volume= 1.164 af, Depth> 2.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.10"

	Area (sf)	CN	Description
	60,418	60	Woods, Fair, HSG B
*	160,598	61	>75% Grass cover, Solar Array Area, HSG B
*	8	98	Solar Array Posts, HSG B
	221,024	61	Weighted Average
	221,016		100.00% Pervious Area
	8		0.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.5	100	0.0177	0.11		**Sheet Flow, Grass - Solar Array Area** Grass: Dense n= 0.240 P2= 3.40"
1.0	40	0.0085	0.65		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
0.3	32	0.0625	1.75		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
2.9	143	0.0140	0.83		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
5.2	211	0.0095	0.68		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
0.4	31	0.0323	1.26		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
2.4	14	0.0323	0.10		**Sheet Flow, Grass (Flow disrupted by stone check dam)** Grass: Dense n= 0.240 P2= 3.40"
5.7	25	0.0323	0.07		**Sheet Flow, Woods (Flow disrupted by stone check dam)** Woods: Light underbrush n= 0.400 P2= 3.40"
32.4	596	Total			

Subcatchment 1S: Area 1 - North



Summary for Subcatchment 2S: Area 1 - West

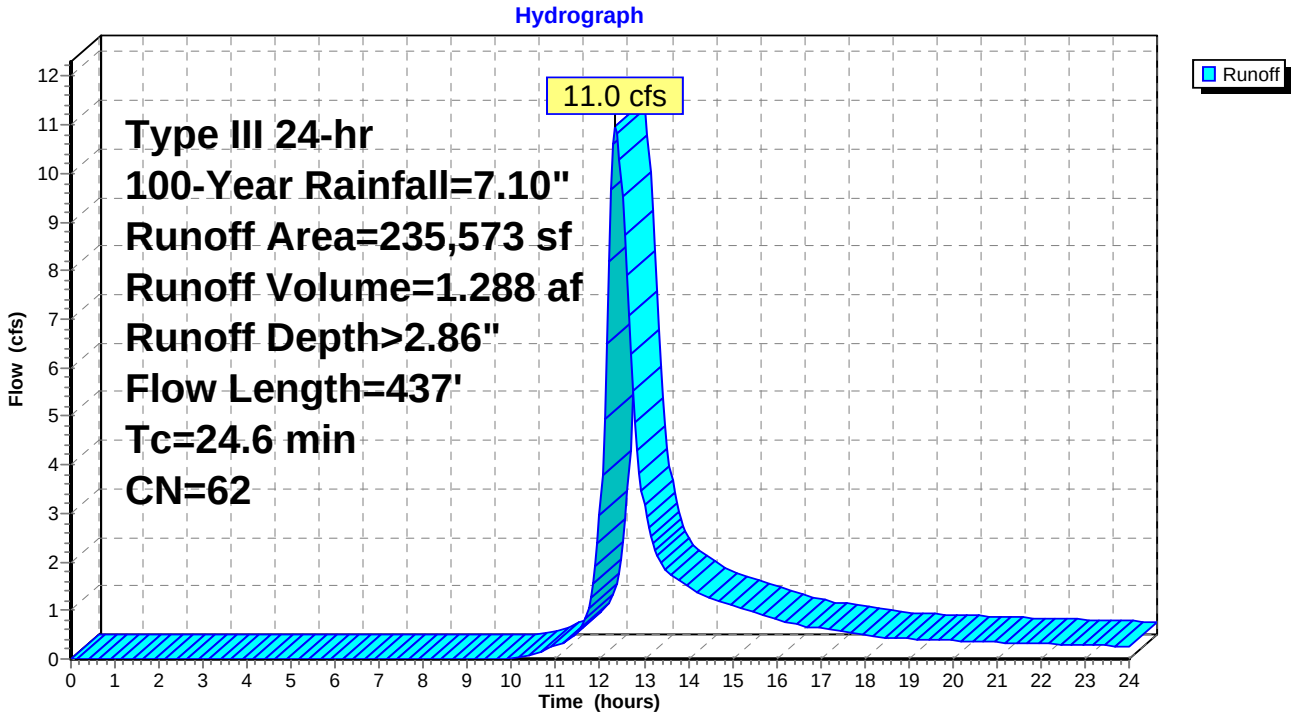
Runoff = 11.0 cfs @ 12.36 hrs, Volume= 1.288 af, Depth> 2.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.10"

	Area (sf)	CN	Description
*	226,231	61	>75% Grass cover, Solar Array Area, HSG B
	8,538	85	Gravel roads, HSG B
*	4	98	Solar Array Racking Posts, HSG B
*	800	98	Concrete Equipment Pad, HSG B
	235,573	62	Weighted Average
	234,769		99.66% Pervious Area
	804		0.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.0	100	0.0120	0.10		**Sheet Flow, Grass - Solar Array Area** Grass: Dense n= 0.240 P2= 3.40"
7.5	312	0.0099	0.70		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
0.1	25	0.1581	2.78		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
24.6	437	Total			

Subcatchment 2S: Area 1 - West



Summary for Subcatchment 3S: Area 1 - East

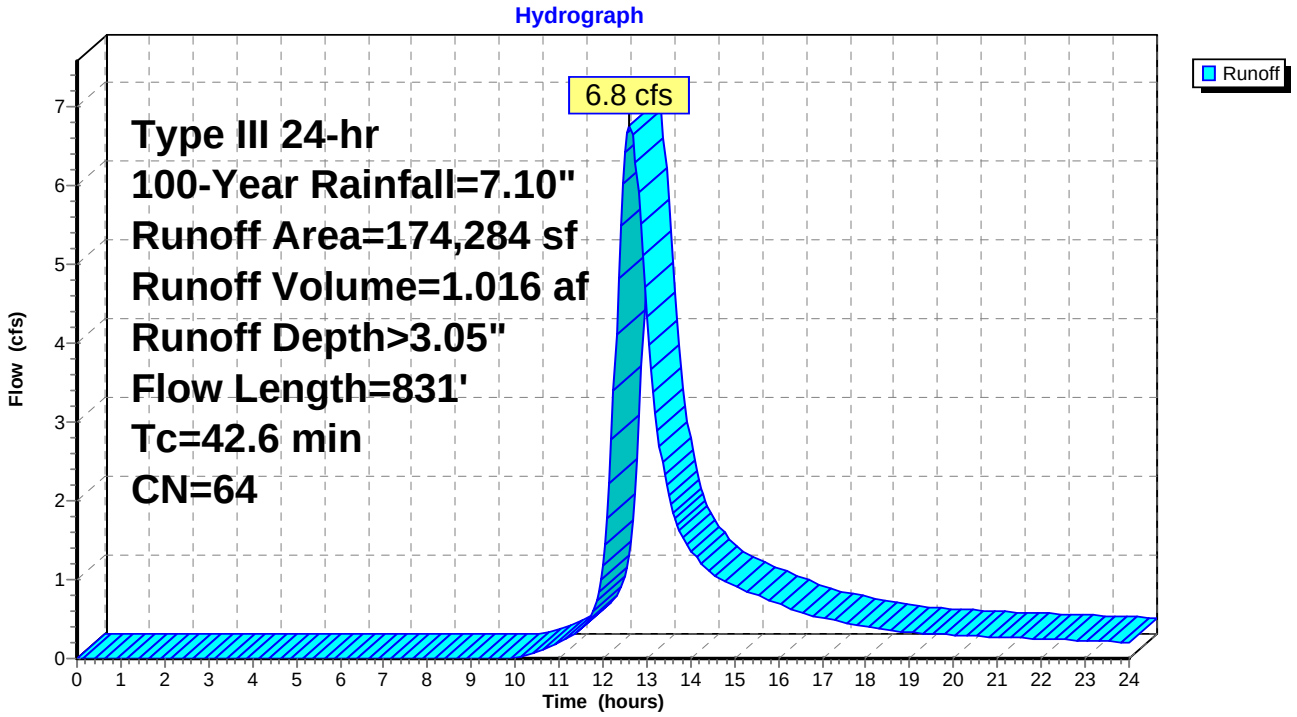
Runoff = 6.8 cfs @ 12.61 hrs, Volume= 1.016 af, Depth> 3.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.10"

	Area (sf)	CN	Description
	19,602	85	Gravel roads, HSG B
*	153,878	61	>75% Grass cover, Solar Array Area, HSG B
*	4	98	Solar Array Racking Posts, HSG B
*	800	98	Concrete Equipment Pads, HSG B
	174,284	64	Weighted Average
	173,480		99.54% Pervious Area
	804		0.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.1	100	0.0090	0.09		**Sheet Flow, Grass - Solar Array Area** Grass: Dense n= 0.240 P2= 3.40"
7.1	174	0.0034	0.41		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
16.3	526	0.0059	0.54		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
0.1	31	0.0742	4.39		**Shallow Concentrated Flow, Grass/Gravel** Unpaved Kv= 16.1 fps
42.6	831	Total			

Subcatchment 3S: Area 1 - East



Summary for Subcatchment 4S: Area 2 - West

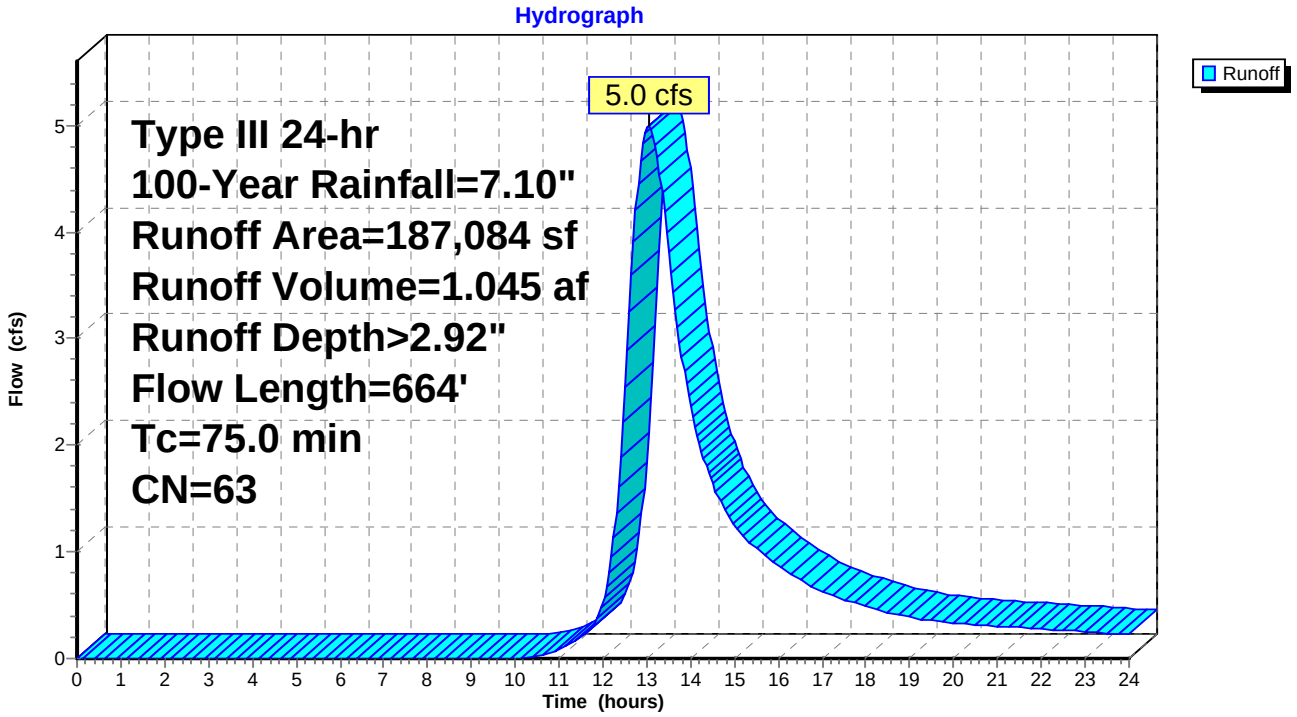
Runoff = 5.0 cfs @ 13.05 hrs, Volume= 1.045 af, Depth> 2.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.10"

	Area (sf)	CN	Description
	10,060	60	Woods, Fair, HSG B
*	161,719	61	>75% Grass cover, Solar Array Area, HSG B
	14,898	85	Gravel roads, HSG B
*	7	98	Solar Array Racking Posts, HSG B
*	400	98	Concrete Equipment Pad, HSG B
	187,084	63	Weighted Average
	186,677		99.78% Pervious Area
	407		0.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0	100	0.0080	0.08		**Sheet Flow, Grass - Solar Array Area** Grass: Dense n= 0.240 P2= 3.40"
1.3	86	0.0233	1.07		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
7.5	235	0.0055	0.52		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
13.3	177	0.0010	0.22		**Shallow Concentrated Flow, Grass - Solar Array Area** Short Grass Pasture Kv= 7.0 fps
32.9	66	0.0010	0.03		**Sheet Flow, Grass (Flow disrupted by stone check dam)** Grass: Dense n= 0.240 P2= 3.40"
75.0	664	Total			

Subcatchment 4S: Area 2 - West



Summary for Subcatchment 5S: Area 2 - East

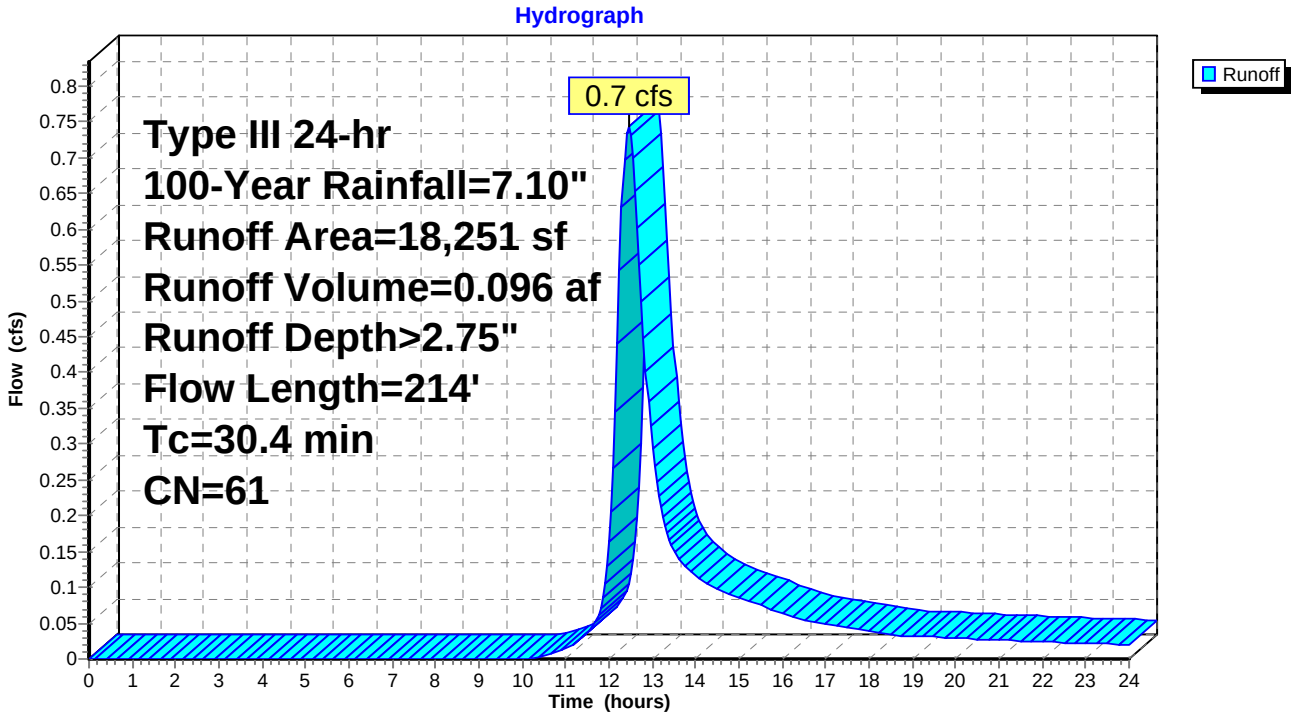
Runoff = 0.7 cfs @ 12.45 hrs, Volume= 0.096 af, Depth> 2.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.10"

	Area (sf)	CN	Description
*	18,250	61	>75% Grass cover, Solar Array Area, HSG B
*	1	98	Solar Array Racking Posts, HSG B
	18,251	61	Weighted Average
	18,250		99.99% Pervious Area
	1		0.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.2	58	0.0034	0.05		**Sheet Flow, Grass - Solar Array Area** Grass: Dense n= 0.240 P2= 3.40"
8.5	42	0.0119	0.08		**Sheet Flow, Grass - Solar Array Area** Grass: Dense n= 0.240 P2= 3.40"
2.8	86	0.0105	0.51		**Shallow Concentrated Flow, Grass - Solar Array Area** Woodland Kv= 5.0 fps
0.9	28	0.0050	0.49		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
30.4	214	Total			

Subcatchment 5S: Area 2 - East

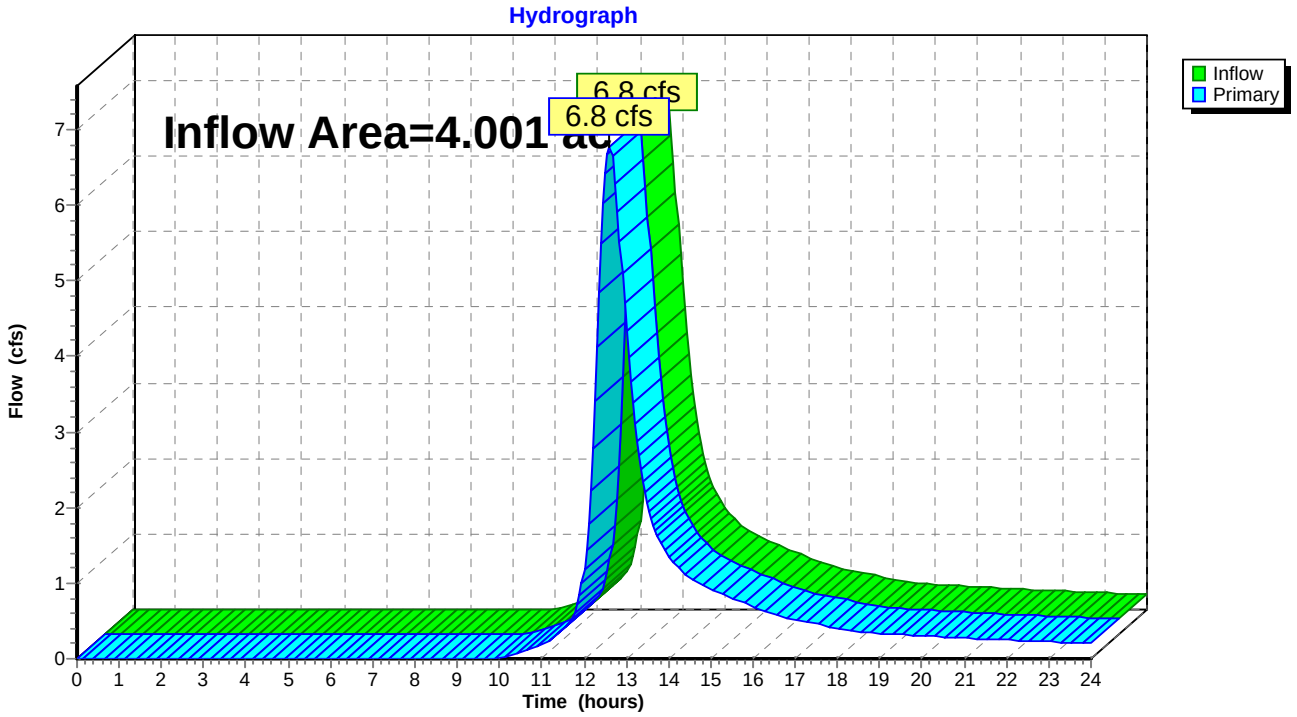


Summary for Link 4L: Wooded Area to East

Inflow Area = 4.001 ac, 0.46% Impervious, Inflow Depth > 3.05" for 100-Year event
Inflow = 6.8 cfs @ 12.61 hrs, Volume= 1.016 af
Primary = 6.8 cfs @ 12.61 hrs, Volume= 1.016 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 4L: Wooded Area to East

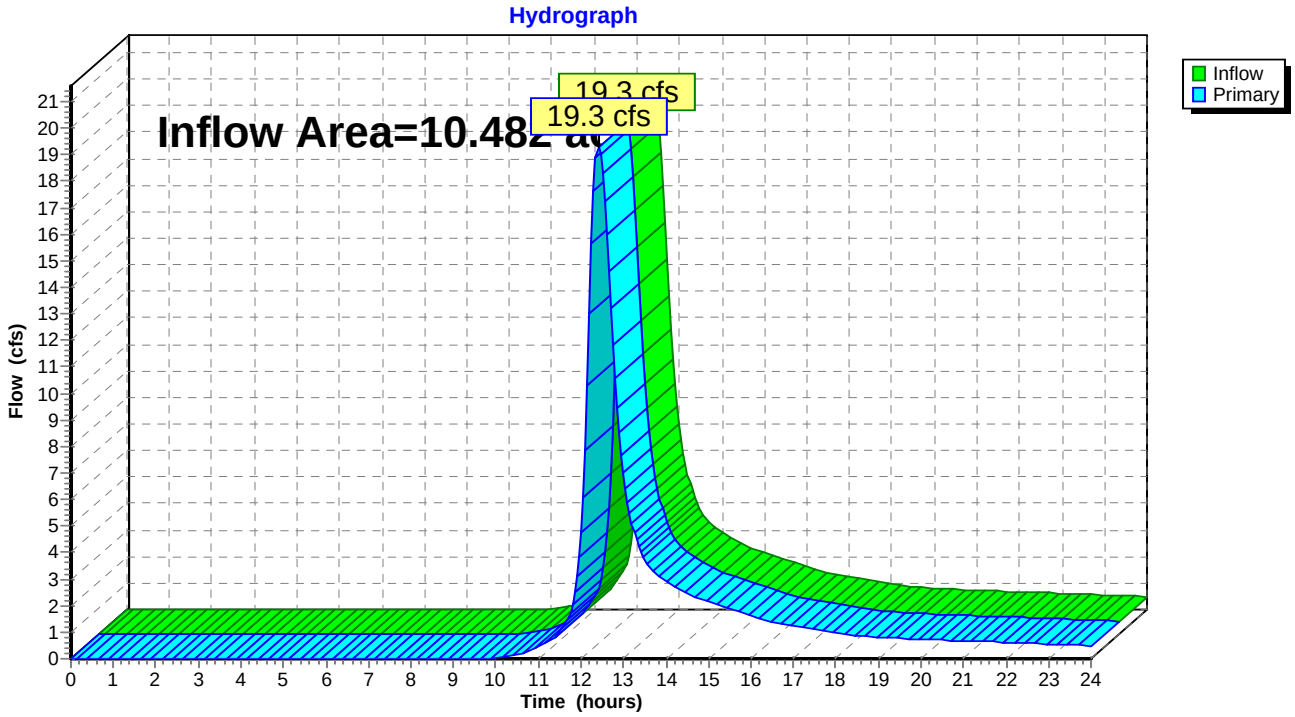


Summary for Link 6L: To Reservoir

Inflow Area = 10.482 ac, 0.18% Impervious, Inflow Depth > 2.81" for 100-Year event
Inflow = 19.3 cfs @ 12.41 hrs, Volume= 2.452 af
Primary = 19.3 cfs @ 12.41 hrs, Volume= 2.452 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 6L: To Reservoir

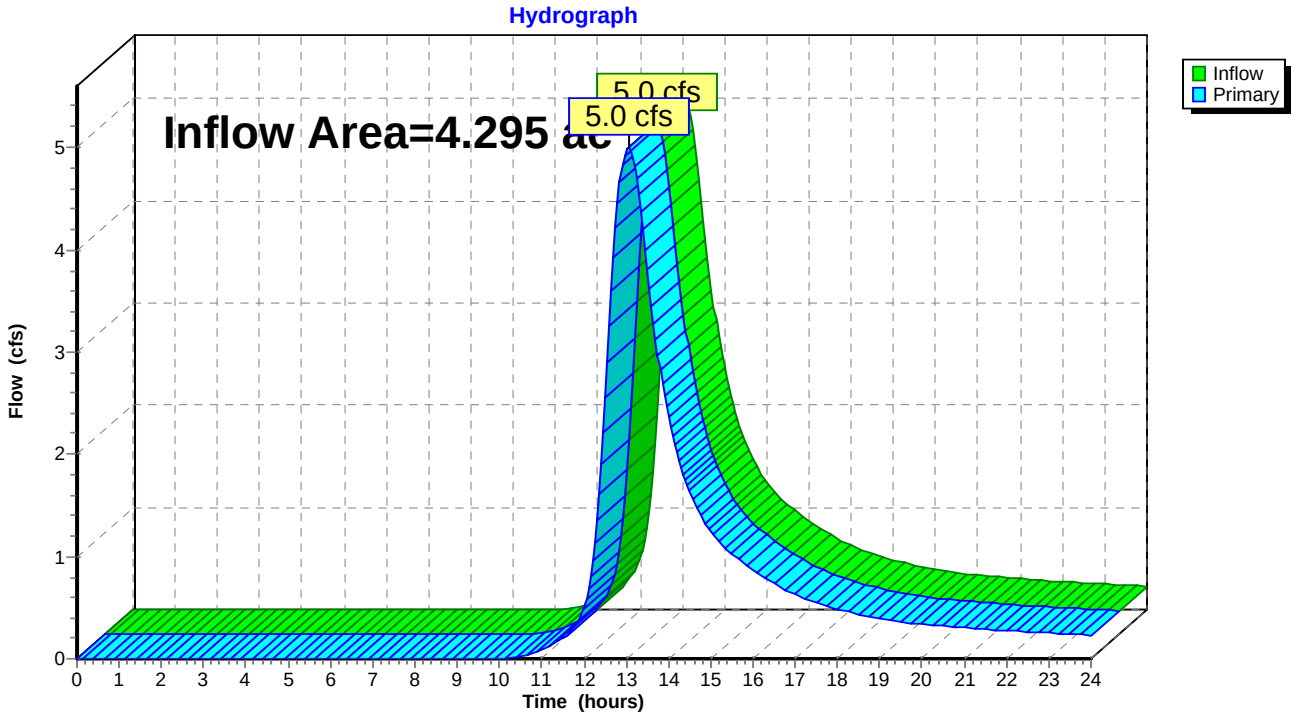


Summary for Link 7L: Off-Site Flow to South

Inflow Area = 4.295 ac, 0.22% Impervious, Inflow Depth > 2.92" for 100-Year event
Inflow = 5.0 cfs @ 13.05 hrs, Volume= 1.045 af
Primary = 5.0 cfs @ 13.05 hrs, Volume= 1.045 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 7L: Off-Site Flow to South

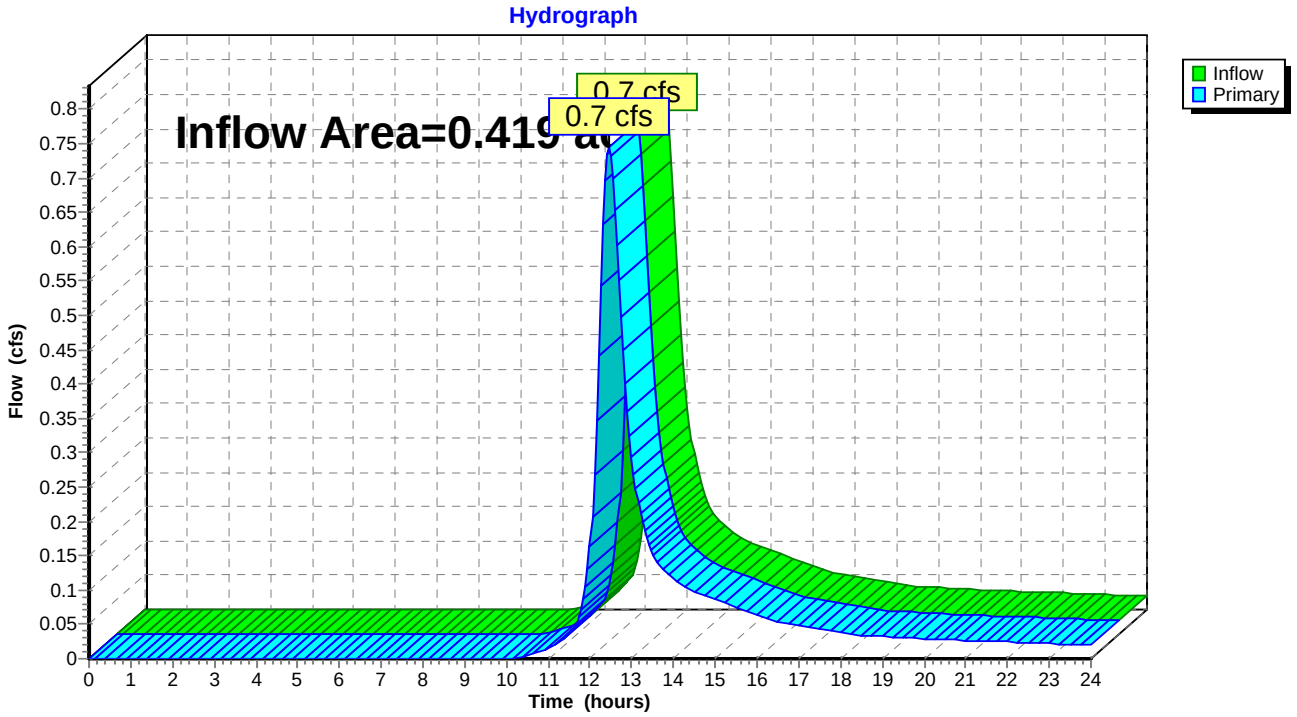


Summary for Link 8L: Off-Site Flow to East

Inflow Area = 0.419 ac, 0.01% Impervious, Inflow Depth > 2.75" for 100-Year event
Inflow = 0.7 cfs @ 12.45 hrs, Volume= 0.096 af
Primary = 0.7 cfs @ 12.45 hrs, Volume= 0.096 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

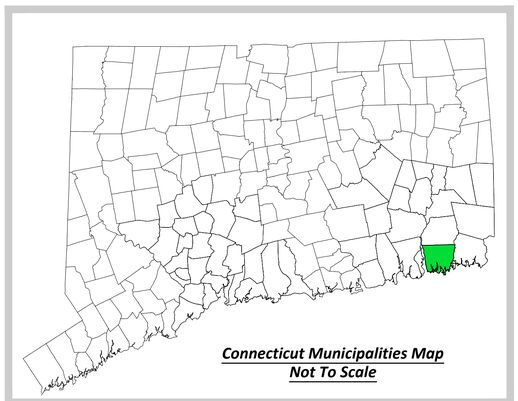
Link 8L: Off-Site Flow to East



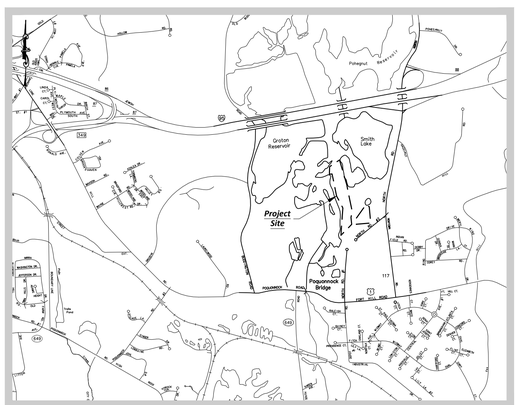
Appendix C
Site Development Plans

POQUONNOCK ROAD SOLAR PROJECT
DEVELOPMENT AND MANAGEMENT PLAN
SolarCity Corporation

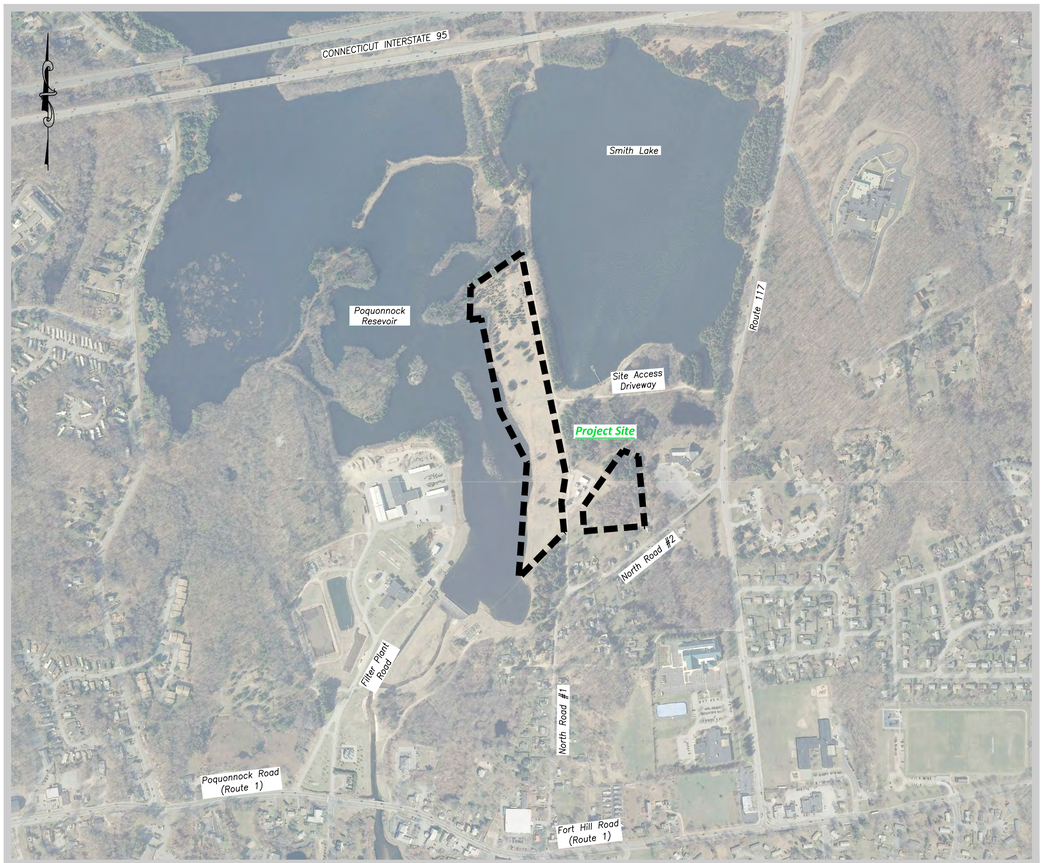
1240 Poquonnock Road - Groton, Connecticut
October 2015



Connecticut Municipalities Map
Not To Scale



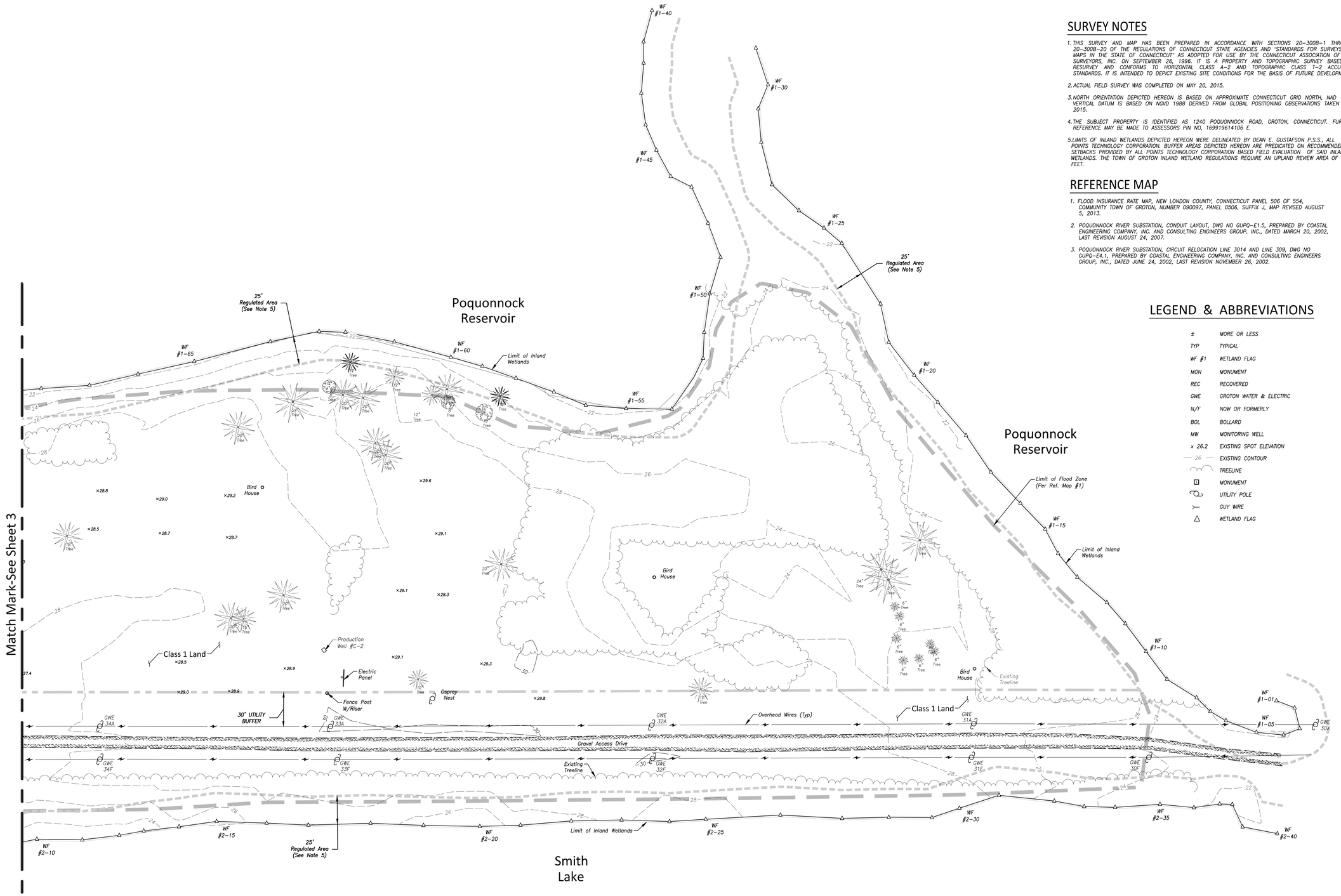
Site Location Map
Scale: 1"=2000'



Site Location Aerial View
Not To Scale

Project Information	
Developed By:	***Electrical Engineer:***
Brightfields Development, LLC *40 Walnut Street, Suite 301* *Wellesley, MA 02481*	*SolarCity Corporation* *714 Brook Street* *Rocky Hill, CT 06067*
SolarCity Corporation *714 Brook Street* *Rocky Hill, CT 06067*	***Host:*** *City of Groton* *295 Meridian Street* *Groton, CT 06340*
Civil Engineer: *Boundaries LLC* *179 Pachaug River Drive* *Griswold, CT 06351*	***Utility:*** *Groton Utilities* *295 Meridian Street* *Groton, CT 06340*

Index To Drawings	
Sheet	*Sheet Title*
1	*Cover Sheet*
2-3	*Topographic Survey-Existing Conditions*
4	*Site Logistics Plan*
5-6	*Site Preparation and Demolition Plan*
7-8	*Site Development Plan Solar Modules and Infrastructure*
9	*Erosion & Sediment and Spill Prevention & Control Plan*
10	*Site Details*



SURVEY NOTES

1. THIS SURVEY AND MAP HAS BEEN PREPARED IN ACCORDANCE WITH SECTIONS 20-300B-1 THROUGH 20-300B-20 OF THE REGULATIONS OF CONNECTICUT STATE AGENCIES AND "STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" AS ADOPTED FOR USE BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 26, 1996. IT IS A PROPERTY AND TOPOGRAPHIC SURVEY BASED ON RESURVEY AND CONFORMS TO HORIZONTAL CLASS A-2 AND TOPOGRAPHIC CLASS T-2 ACCURACY STANDARDS. IT IS INTENDED TO DEPICT EXISTING SITE CONDITIONS FOR THE BASIS OF FUTURE DEVELOPMENT.
2. ACTUAL FIELD SURVEY WAS COMPLETED ON MAY 20, 2015.
3. NORTH ORIENTATION DEPICTED HEREON IS BASED ON APPROXIMATE CONNECTICUT GRID NORTH, NAD 1983, VERTICAL DATUM IS BASED ON NGVD 1988 DERIVED FROM GLOBAL POSITIONING OBSERVATIONS TAKEN MAY 2015.
4. THE SUBJECT PROPERTY IS IDENTIFIED AS 1240 POQUONNOCK ROAD, GROTON, CONNECTICUT. FURTHER REFERENCE MAY BE MADE TO ASSESSORS PIN NO, 1699196141O6 E.
5. LIMITS OF INLAND WETLANDS DEPICTED HEREON WERE DELINEATED BY DEAN E. GUSTAFSON P.S.S., ALL POINTS TECHNOLOGY CORPORATION. BUFFER AREAS DEPICTED HEREON ARE PREDICATED ON RECOMMENDED SETBACKS PROVIDED BY ALL POINTS TECHNOLOGY CORPORATION BASED FIELD EVALUATION OF SAID INLAND WETLANDS. THE TOWN OF GROTON INLAND WETLAND REGULATIONS REQUIRE AN UPLAND REVIEW AREA OF 100 FEET.

REFERENCE MAP

1. FLOOD INSURANCE RATE MAP, NEW LONDON COUNTY, CONNECTICUT PANEL 506 OF 554, COMMUNITY TOWN OF GROTON, NUMBER 090097, PANEL 0506, SUFFIX J, MAP REVISED AUGUST 5, 2013.
2. POQUONNOCK RIVER SUBSTATION, CONDUIT LAYOUT, DWG NO CUPO-E1.5, PREPARED BY COASTAL ENGINEERING COMPANY, INC. AND CONSULTING ENGINEERS GROUP, INC., DATED MARCH 20, 2002, LAST REVISION AUGUST 24, 2007.
3. POQUONNOCK RIVER SUBSTATION, CIRCUIT RELOCATION LINE 3014 AND LINE 309, DWG NO CUPO-E4.1, PREPARED BY COASTAL ENGINEERING COMPANY, INC. AND CONSULTING ENGINEERS GROUP, INC., DATED JUNE 24, 2002, LAST REVISION NOVEMBER 26, 2002.

LEGEND & ABBREVIATIONS

±	MORE OR LESS
TYP	TYPICAL
WF #1	WETLAND FLAG
MON	MONUMENT
REC	RECOVERED
GWE	GROTON WATER & ELECTRIC
N/F	NOW OR FORMERLY
BOL	BOLLARD
MW	MONITORING WELL
× 26.2	EXISTING SPOT ELEVATION
26	EXISTING CONTOUR
	TREELINE
	MONUMENT
	UTILITY POLE
	GUY WIRE
	WETLAND FLAG

GRAPHIC SCALE

80 40 20 0 40

(IN FEET)
1 inch = 40 ft.

"TO MY KNOWLEDGE AND BELIEF THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON."

JOHN U. FAULISE JR. L.S. — LICENSE NO. 70016 — DATE

CIVIL ENGINEERING · LAND SURVEYING · LAND DEVELOPMENT PLANNING · GIS SERVICES
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179 Pachaug River Drive Griswold, CT 06351
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www.solarcity.com

SolarCity Corporation
Proposed Solar Photovoltaic System
1240 Poquonnock Road
Groton, Connecticut
Topographic Survey-Existing Conditions

SCALE: 1"=40'
DATE: October 2015
JOB I.D. NO. 15-2347
Revisions

SHEET NO.
2
10

Poquonnock Reservoir

Subject Property
The City of Groton
Volume 210 Page 679

N/F
Todd W. Johnson
Volume 1103 Page 946
& Volume 625 Page 978

N/F
The City of Groton
Volume 210 Page 679 &
Volume 201 Page 524

N/F
Michelle Lucretia Messina
Volume 780 Page 854

N/F
Town of Groton
Volume 530 Page 110

N/F
Randi J. Crowe &
Norbert Carroca
Volume 902 Page 185

N/F
Laurel J. Rodgers
Volume 287 Page 250

Smith Lake

Poquonnock Substation

Class 1 Land

Class 2 Land

Class 1 Land / Class 2 Land

Class 2 Land / Class 1 Land

Match Mark-See Sheet 2

Osprey Nest

Osprey Nest Pole #27

Bird House

WF #90

WF #85

WF #80

WF #75

WF #70

25' Regulated Area (See Note 5)

Approximate Water Main Location (From Groton Public Utilities)

Limit of Inland Wetlands

Limit of Flood Zone (See Note #5)

30' UTILITY BUFFER

Approximate Water Main (From Groton Public Utilities)

Approximate Buried Electrical Conduit (Typ) (From Groton Public Utilities)

Overhead Wires (Typ)

Chain-Link Fence

Approximate Buried TeleComm Conduit (Typ) (From Groton Public Utilities)

(3) Utility Access Covers

(2) Utility Access Covers

Transformer

Edge of Crushed Stone

Approximate Property Line

Mon Rec

LIMIT OF VERNAL POOL NON-DISTURBANCE AREA (SEE NOTE 5)

Existing Treeline

Vernal Pool #1

Vernal Pool #3

WF #3-01

WF #3-05

WF #3-10

WF #3-15

WF #3-20

WF #3-25

WF #4-5

WF #4-10

WF #4-15

100' Regulated Area (See Note 5)

BENCHMARK
Spike Set in GWE
Elev=28.36

Gravel Access Drive

Water Meter

Limit of Flood Zone (Per Ref. Map #1)

WF #2-01

WF #2-05

GWE 38F

GWE 37F W/UG

GWE 37AW/UG

GWE 0-381-5

GWE 0-381-6 W/UG

GWE 36A W/UG

GWE 35A

GWE 35F

GWE 34.5A

GWE 34.5F

GRAPHIC SCALE

80 40 20 0 40

(IN FEET)
1 inch = 40 ft.

"TO MY KNOWLEDGE AND BELIEF THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON."

70016
JOHN U. FAULISE JR. L.S. — LICENSE NO. — DATE

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Groton, Connecticut
Topographic Survey-Existing Conditions

SCALE: 1"=40'
DATE: October 2015
JOB I.D. NO. 15-2347
Revisions

SHEET NO.
3
10

10' X 10' DESIGNATED CONCRETE WASHOUT AREA

20' X 25' CONCRETE FUELING PAD

PROVIDE ANTI-TRACKING PAD FOR ACCESS TO STAGING AREA

MAINTAIN 30' HORIZONTAL CLEARANCE FROM OVERHEAD UTILITIES

FEASIBLE LOCATION FOR STORAGE CONTAINERS AND COVERED WASTE DUMPSTERS

FEASIBLE LOCATION FOR JOB TRAILER

FEASIBLE AREA TO BE USED FOR CONSTRUCTION STAGING. FOLLOWING THE COMPLETION OF CONSTRUCTION THE AREA IS TO BE RESTORED TO ORIGINAL CONDITION. THIS INCLUDES REMOVAL OF TEMPORARY EQUIPMENT AND PADS, AND LOAMING, SEEDING, AND MULCHING DISTURBED GRASS AREAS.

STAGING AREA TO BE USED FOR MATERIALS STORAGE AND VEHICLE AND EQUIPMENT PARKING. ALL VEHICLES AND EQUIPMENT SHALL BE PARKED OVER DRIP PANS AT THE END OF EACH DAY.

REDUCE SIZE OF STAGING AREA AS REQUIRED TO COMPLETE THE CONSTRUCTION OF MOUNTING PLANE 3. STAGING AREA TO BE LOCATED OUTSIDE OF CLASS 1 LAND AS DEFINED BY THE CONNECTICUT DEPARTMENT OF PUBLIC HEALTH.

NORTH ROAD

EXISTING ACCESS DRIVE TO BE USED DURING CONSTRUCTION

PROVIDE ANTI-TRACKING PAD AT CONSTRUCTION ENTRANCE IN ACCORDANCE WITH DETAIL

CONSTRUCTION ENTRANCE FROM CT ROUTE #117 (NEWTOWN ROAD)

CT ROUTE #117

GRAPHIC SCALE

200 100 50 0 100

(IN FEET)

1 inch = 100 ft.

CIVIL ENGINEERING LAND SURVEYING LAND DEVELOPMENT LAND CAREERS

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SCALE: 1"=100'

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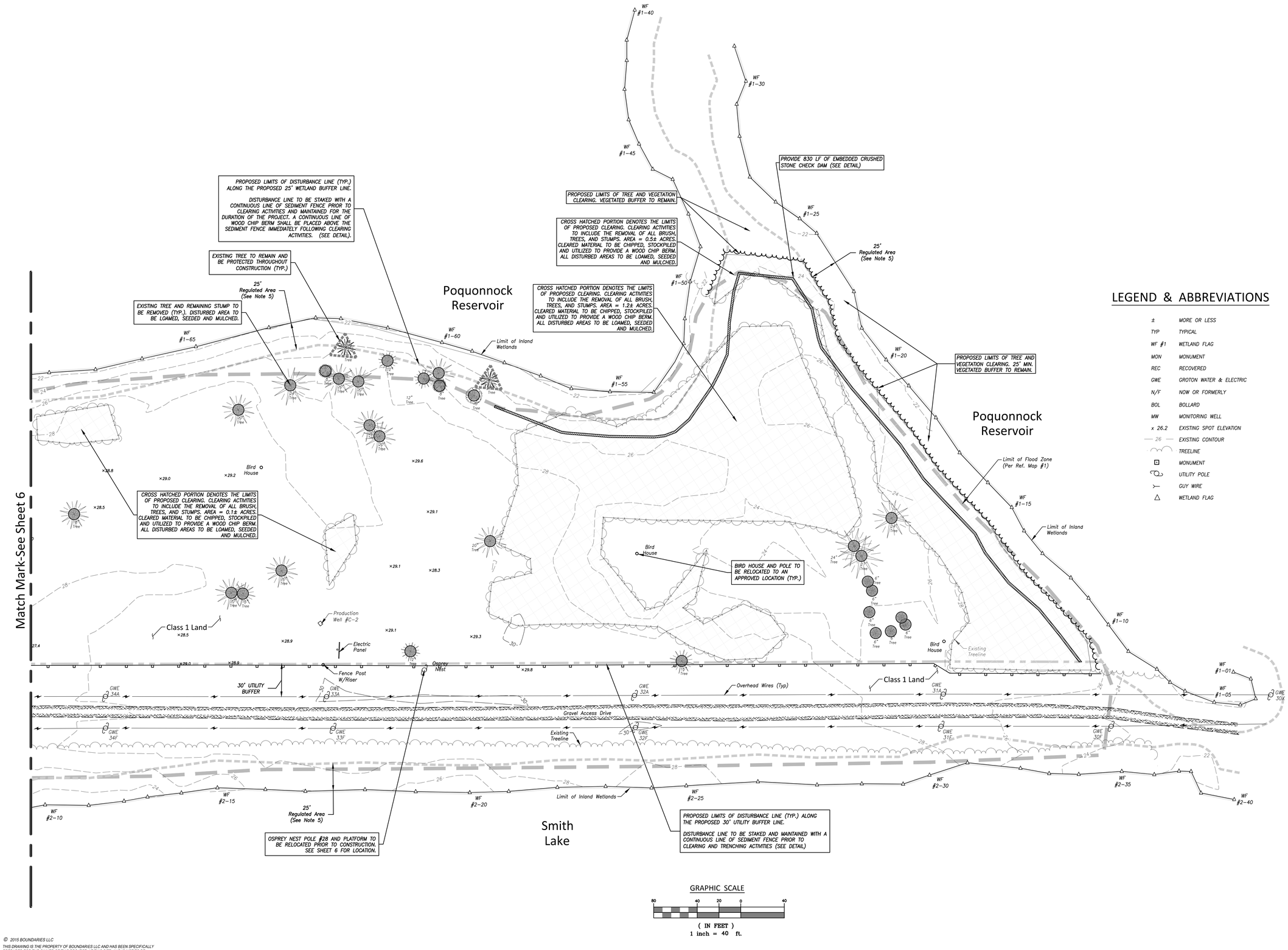
JOB I.D. NO. 15-2347

Revisions

SHEET NO.

4

10



LEGEND & ABBREVIATIONS

±	MORE OR LESS
TYP	TYPICAL
WF #1	WETLAND FLAG
MON	MONUMENT
REC	RECOVERED
GWE	GROTON WATER & ELECTRIC
N/F	NOW OR FORMERLY
BOL	BOLLARD
MW	MONITORING WELL
x 26.2	EXISTING SPOT ELEVATION
26	EXISTING CONTOUR
	TREELINE
	MONUMENT
	UTILITY POLE
	GUY WIRE
	WETLAND FLAG

GRAPHIC SCALE

80 40 20 0 40

(IN FEET)

1 inch = 40 ft.

CIVIL ENGINEERING LAND SURVEYING LAND DEVELOPMENT LAND DESIGNING
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1240 Poquonnock Road
Groton, Connecticut
Site Preparation and Demolition Plan

SCALE: 1"=40'
DATE: October 2015
JOB I.D. NO. 15-2347
Revisions

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OSPREY NEST PLATFORM TO BE PROTECTED FOR THE DURATION OF CONSTRUCTION.

BIRD HOUSE AND POLE TO BE RELOCATED TO AN APPROVED LOCATION (TYP.)

PROPOSED LIMITS OF DISTURBANCE LINE (TYP.) ALONG THE PROPOSED 25' WETLAND BUFFER LINE.

DISTURBANCE LINE TO BE STAKED WITH A CONTINUOUS LINE OF SEDIMENT FENCE PRIOR TO CLEARING ACTIVITIES AND MAINTAINED FOR THE DURATION OF THE PROJECT. A CONTINUOUS LINE OF WOOD CHIP BERM SHALL BE PLACED AT THE SEDIMENT FENCE IMMEDIATELY FOLLOWING CLEARING ACTIVITIES. (SEE DETAIL).

25' Regulated Area (See Note 5)

EXISTING TREE AND REMAINING STUMP TO BE REMOVED (TYP.). DISTURBED AREA TO BE LOAMED, SEEDED AND MULCHED.

OSPREY NEST POLE #27 AND PLATFORM TO BE RELOCATED PRIOR TO CONSTRUCTION. SEE THIS SHEET FOR LOCATION.

EXISTING TREE TO REMAIN AND BE PROTECTED THROUGHOUT CONSTRUCTION (TYP.)

PROPOSED LOCATION FOR OSPREY NEST POLE #27 AND PLATFORM. RELOCATION TO BE COORDINATED WITH ENVIRONMENTAL MONITOR.

PROPOSED LIMITS OF DISTURBANCE LINE (TYP.) ALONG THE PROPOSED 30' UTILITY BUFFER LINE.

DISTURBANCE LINE TO BE STAKED AND MAINTAINED WITH A CONTINUOUS LINE OF SEDIMENT FENCE IMMEDIATELY FOLLOWING CLEARING ACTIVITIES (SEE DETAIL)

30' UTILITY BUFFER

PROVIDE 375 LF OF EMBEDDED CRUSHED STONE CHECK DAM (SEE DETAIL)

PROPOSED LIMITS OF DISTURBANCE LINE. DISTURBANCE LINE TO BE STAKED AND MAINTAINED WITH A CONTINUOUS LINE OF SEDIMENT FENCE (1000'±) PRIOR TO CLEARING ACTIVITIES (SEE DETAIL)

CROSS HATCHED PORTION DENOTES THE LIMITS OF PROPOSED CLEARING. CLEARING ACTIVITIES TO INCLUDE THE REMOVAL OF ALL BRUSH, TREES, AND STUMPS. AREA = 1.4± ACRES. CLEARED MATERIAL TO BE CHIPPED, STOCKPILED AND UTILIZED TO PROVIDE A WOOD CHIP BERM. ALL DISTURBED AREAS TO BE LOAMED, SEEDED AND MULCHED.

PROVIDE CONTINUOUS LINE OF SEDIMENT FENCE (330'±) DOWNGRADIENT OF PROPOSED ELECTRICAL CONDUIT PRIOR TO TRENCH EXCAVATION (SEE DETAIL)

PROPOSED LIMITS OF DISTURBANCE LINE (TYP.) ALONG A PORTION OF THE PROPOSED VERNAL POOL NON-- DISTURBANCE AREA.

DISTURBANCE LINE TO BE STAKED WITH A CONTINUOUS LINE OF SEDIMENT FENCE PRIOR TO CLEARING ACTIVITIES AND MAINTAINED FOR THE DURATION OF THE PROJECT. A CONTINUOUS LINE OF WOOD CHIP BERM SHALL BE PLACED AT THE SEDIMENT FENCE IMMEDIATELY FOLLOWING CLEARING ACTIVITIES. (SEE DETAIL). END AT SUBSTATION FENCE.

PROPOSED LIMITS OF TREE AND VEGETATION CLEARING. VEGETATED BUFFER TO REMAIN.

CROSS HATCHED PORTION DENOTES THE LIMITS OF PROPOSED CLEARING. CLEARING ACTIVITIES TO INCLUDE THE REMOVAL OF ALL BRUSH, TREES, AND STUMPS. AREA = 0.7± ACRES. CLEARED MATERIAL TO BE CHIPPED, STOCKPILED AND UTILIZED TO PROVIDE A WOOD CHIP BERM. ALL DISTURBED AREAS TO BE LOAMED, SEEDED AND MULCHED.

LIMIT OF VERNAL POOL NON-DISTURBANCE AREA (SEE NOTE 5)

PROPOSED LIMITS OF DISTURBANCE LINE (TYP.) ALONG THE PROPOSED 30' UTILITY BUFFER LINE.

DISTURBANCE LINE TO BE STAKED AND MAINTAINED WITH A CONTINUOUS LINE OF SEDIMENT FENCE PRIOR TO CLEARING AND TRENCHING ACTIVITIES (SEE DETAIL)

LIMIT OF VERNAL POOL NON-DISTURBANCE AREA (SEE NOTE 5)

PROPOSED LOCATION FOR OSPREY NEST POLE #28 AND PLATFORM. RELOCATION TO BE COORDINATED WITH ENVIRONMENTAL MONITOR

BENCHMARK
Spike Set in GWE
Elev=28.38

Poquonnock Reservoir

Smith Lake

Poquonnock Substation

Class 1 Land

Class 2 Land

Class 1 Land / Class 2 Land

Approximate Property Line

Approximate Water Main (From Groton Public Utilities)

Approximate Buried Electrical Conduit (Typ) (From Groton Public Utilities)

Approximate Buried TeleComm Conduit (Typ) (From Groton Public Utilities)

Overhead Wires (Typ)

Chain-Link Fence

(2) Utility Access Covers

(3) Utility Access Covers

Edge of Crushed Stone

Gravel Access Drive

Limit of Inland Wetlands

Limit of Flood Zone (See Note #5)

Limit of Flood Zone (Per Ref. Map #1)

Existing Treeline

Vernal Pool #1

Vernal Pool #3

Bird House

Osprey Nest

Osprey Nest Pole #27

Transformer

Water Meter

Mon Rec

Match Mark-See Sheet 5

100' Regulated Area (See Note 5)

GRAPHIC SCALE
80 40 20 0 40
(IN FEET)
1 inch = 40 ft.

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SolarCity Corporation
Proposed Solar Photovoltaic System
1240 Poquonnock Road
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Site Preparation and Demolition Plan

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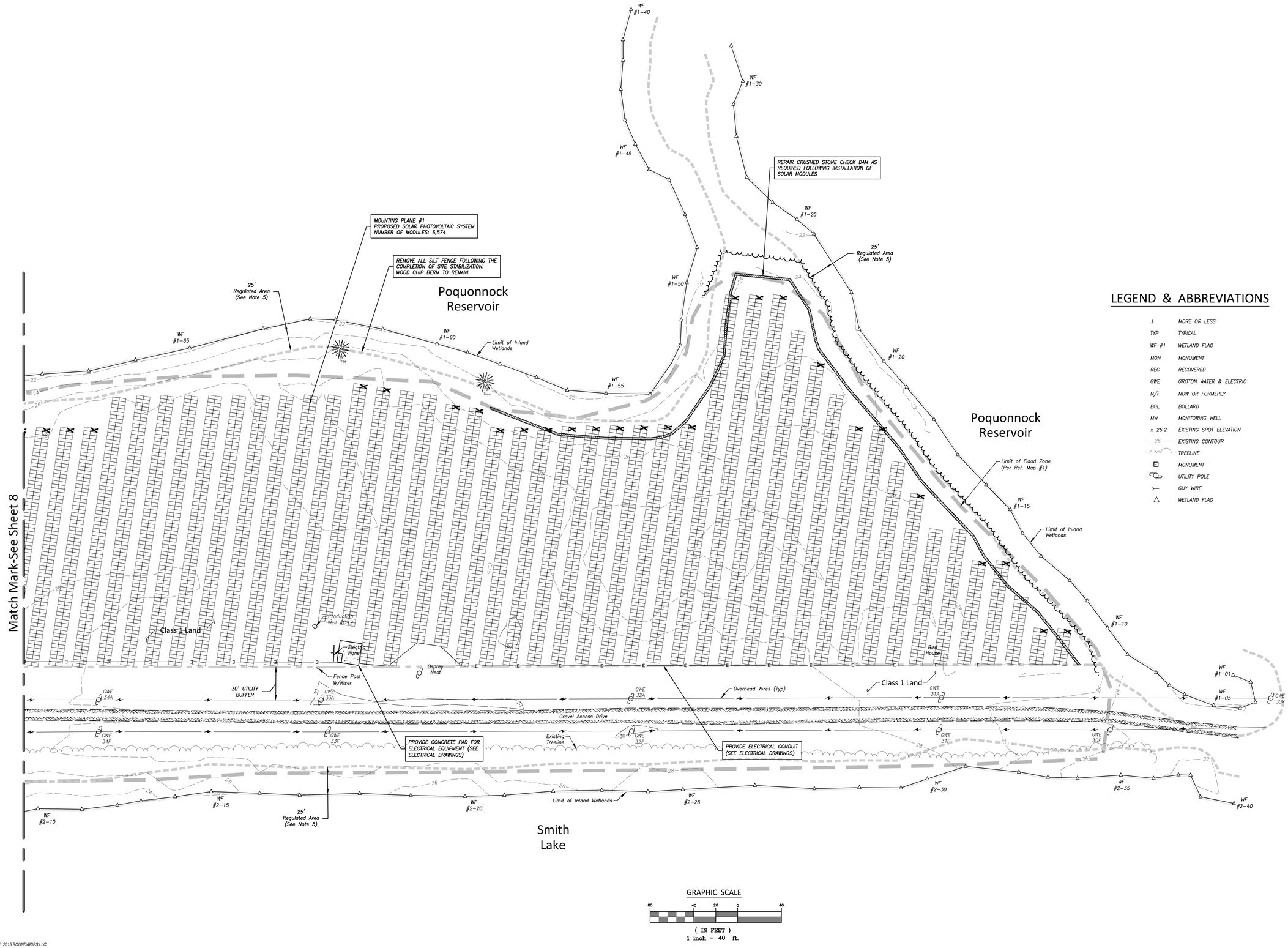

LEGEND & ABBREVIATIONS

±	MORE OR LESS
TYP	TYPICAL
WF #1	WETLAND FLAG
MON	MONUMENT
REC	RECOVERED
GWE	GROTON WATER & ELECTRIC
N/F	NOW OR FORMERLY
BOL	BOLLARD
MW	MONITORING WELL
x 26.2	EXISTING SPOT ELEVATION
— 26 —	EXISTING CONTOUR
	TREELINE
	MONUMENT
	UTILITY POLE
	GUY WIRE
	WETLAND FLAG

GRAPHIC SCALE

80 40 20 0 40

(IN FEET)
1 inch = 40 ft.

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Poquonnock Reservoir

Smith Lake

Match Mark-See Sheet 7

Osprey Nest

WF #90

25' Regulated Area (See Note 5)

Approximate Water Main Location (From Groton Public Utilities)

Limit of Inland Wetlands

Class 1 Land

WF #85

MOUNTING PLANE #2
PROPOSED SOLAR PHOTOVOLTAIC SYSTEM
NUMBER OF MODULES: 2,926

Osprey Nest Pole #27

REMOVE ALL SILT FENCE FOLLOWING THE COMPLETION OF SITE STABILIZATION. WOOD CHIP BERM TO REMAIN.

RELOCATED OSPREY NEST POLE #27

Limit of Flood Zone (See Note #5)

WF #75

WF #70

WF #80

Tree

GWE 38F

30' UTILITY BUFFER

Class 1 Land
Class 2 Land

Approximate Water Main (From Groton Public Utilities)

Mon Rec

GWE 37F W/UG

GWE 37AW/UGE

Gravel Drive

Bol

Transformer

Chain-Link Fence

GWE 0-381-5

GWE 0-381-6 W/UG

Approximate Buried TeleComm Conduit (Typ) (From Groton Public Utilities)

(3) Utility Access Covers

Edge of Crushed Stone

Approximate Property Line

Approximate Buried Electrical Conduit (Typ) (From Groton Public Utilities)

(2) Utility Access Covers

Poquonnock Substation

PROVIDE CONCRETE PAD FOR ELECTRICAL EQUIPMENT (SEE ELECTRICAL DRAWINGS)

Overhead Wires (Typ)

GWE 36A W/UG

GWE 35A

GWE 35F

GWE 34.5A

GWE 34.5F

WF #3-05

WF #3-10

WF #3-15

WF #3-01

Vernal Pool #1

WF #3-25

WF #3-20

Limit of Inland Wetlands

LIMIT OF VERNAL POOL NON-DISTURBANCE AREA (SEE NOTE 5)

PROVIDE CONCRETE PAD FOR ELECTRICAL EQUIPMENT (SEE ELECTRICAL DRAWINGS)

PROPOSED POINT OF INTERCONNECTION (SEE ELECTRICAL DRAWINGS)

RELOCATED OSPREY NEST POLE #28

BENCHMARK
Spike Set in GWE
Elev=28.36

Water Meter

Gravel Access Drive

PROVIDE ELECTRICAL CONDUIT (SEE ELECTRICAL DRAWINGS)

Existing Treeline

LIMIT OF VERNAL POOL NON-DISTURBANCE AREA (SEE NOTE 5)

PROVIDE CONCRETE PAD FOR ELECTRICAL EQUIPMENT (SEE ELECTRICAL DRAWINGS)

REPAIR CRUSHED STONE CHECK DAM AS REQUIRED FOLLOWING INSTALLATION OF SOLAR MODULES

MOUNTING PLANE #3
PROPOSED SOLAR PHOTOVOLTAIC SYSTEM
NUMBER OF MODULES: 3,572

REMOVE ALL SILT FENCE FOLLOWING THE COMPLETION OF SITE STABILIZATION. WOOD CHIP BERM TO REMAIN.

100' Regulated Area (See Note 5)

WF #4-10

WF #4-5

WF #4-15

Vernal Pool #3

WF #2-05

WF #2-01

Limit of Flood Zone (Per Ref. Map #1)

GRAPHIC SCALE

80 40 20 0 40

(IN FEET)
1 inch = 40 ft.

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Reference Is Made To:

1. Connecticut Guidelines For Soil Erosion and Sediment Control, MAY 2002.
2. Soil Survey Of New London County Connecticut, U.S.D.A. Soil Conservation Service.

Development Schedule:

Prior to the start of construction, the contractor is to schedule a mandatory preconstruction meeting on site to discuss issues as they relate to the proposed project. These issues will include but not be limited to:

1. Resource Protection.
2. Construction Vehicle Access and Parking.
3. Construction Methods and Scheduling.
4. Existing site utilities and mark-out coordination.
5. Material delivery and stockpiling.
6. Site Inspection procedures and As-Built drawings.

General Sequence of Construction:

1. Secure all necessary local, state, and federal permits. Register for all applicable state and federal permits as required.
2. Install anti-tracking pad at construction entrance and sediment fence in vicinity of proposed access drive.
3. Clear and remove all trees within the proposed clearing limits. Chip trees for use as sediment and erosion control berms (wood chip berms) for erosion control.
4. Install sediment and erosion control berms (wood chip berms) and sediment fence as shown down gradient of proposed development area prior to grubbing operations.
5. Grub stumps in cleared areas and restore disturbed areas by loaming, seeding and mulching. Stockpile excess topsoil for use in site restoration. Seed these stockpiles with ryegrass and surround with sediment fence or sediment and erosion control berm (wood chip berm). All stumps are to be ground or disposed of off-site at a location approved to accept stumps.
6. Install wetlands mitigation improvements and proposed solar array system. Install conduit, concrete utility pads and electrical equipment as required for harvesting power.
7. After all areas have been permanently stabilized, remove erosion control measures. Wood chip berms may be left in place.

Soil Disturbance Phasing:

The project results in an estimated total soil disturbance of approximately 4.04 acres as a result of the following activities:

1. Clearing, grubbing, and restoration of Mounting Planes 1 and 2 – 1.85 acres
2. Clearing, grubbing, and restoration of Mounting Plane 3 – 2.14 acres
3. Miscellaneous site improvements (landscaping, utilities, etc.) – 0.05 acres

Each of the soil disturbing activities referenced above will be completed and disturbed areas stabilized to insure that the total disturbed area on site does not exceed 5.0 acres at any given time.

Construction Notes:

1. The Contractor shall Call Before You Dig at 811 or 1-800-922-4455 at least 72 hours, Saturdays, Sundays, and holidays excluded, prior to excavation at any location. A copy of the Call Before You Dig project reference number(s) shall be given to the Owner prior to excavation.
2. Locations of existing pipes, conduits, utilities, foundations and other underground objects are not warranted to be correct and the Contractor shall have no claim on that account should they be other than that shown.
3. Stone walls, fences, curbs, etc. shall be removed and replaced as necessary to perform the work. Unless otherwise indicated, all such work shall be incidental to construction of the project.
4. All other areas disturbed by the Contractor beyond payment limits shall be restored at no additional cost to the Owner.
5. The wetland buffer line shall be staked out in the field prior to any clearing operations.
6. All work shall be done in accordance with OSHA requirements and the contractor is responsible for compliance with these requirements. In addition, it shall be the responsibility of the Contractor to provide any excavation safeguards, necessary barricades, flagmen, etc. for traffic control and site safety.
7. All erosion & sedimentation control measures shall be installed prior to the start of construction.
8. All fuel, oil, paint or other hazardous materials used during construction should be stored in a secondary container and removed to a locked indoor area with an impervious floor during non-work hours.

Erosion Control Operation & Maintenance:

The applicant shall be responsible for the installation and maintenance of erosion and sediment control measures throughout the project. No construction shall proceed until proper sedimentation and erosion control methods have been installed as the sequence of construction necessitates.

Every precaution shall be used during construction to prevent and minimize the degradation of the existing water quality from stormwater runoff during construction. All activities shall be in conformance to and consistent with all applicable water quality standards and management practices as set forth by local, state and federal agencies.

The applicant shall appoint an onsite agent who shall be personally responsible for implementing this erosion and sediment control plan and enforcing the prescribed safeguards during the excavation and operation period.

This responsibility includes the installation and maintenance of control measures throughout the project, informing all parties engaged on site of the requirements and objectives of the plan, notifying the proper agency and officials of any transfer of this responsibility.

All erosion and sediment control measures shall be repaired, cleaned and/or replaced as necessary throughout the project in order to maintain complete and integral erosion and sediment control protection. Once in place, all erosion and sediment control measures are to remain in place in proper condition and be continuously maintained until final site restoration has been completed. Following such permanent stabilization, the erosion and sediment control measures shall be dismantled, removed, and disposed of in an approved manner. Additional erosion and sediment control measures beyond those shown on the plans or prescribed herein shall be put in place, whenever necessary, to address field conditions and/or as ordered by the engineer.

Qualified personnel provided by the applicant shall inspect disturbed areas and the locations where vehicles enter and leave the site. These areas shall be inspected at least once every seven calendar days and within twenty-four hours of the end of a storm that is 0.5 inches or greater. Additional measures beyond those indicated and/or shown on this plan set or prescribed herein shall be put in place, whenever necessary, to address field conditions and/or as required by the engineer. Where sites have been temporarily or finally stabilized, such inspection shall be conducted at least once every month for three consecutive months.

No soil, fill or other materials shall be deposited in surrounding inland wetlands.

All temporary storage and/or stockpile areas shall be properly stabilized to prevent erosion and suitably contained to prevent turbid runoff.

Dumping of oil or other deleterious materials on the ground is forbidden. The applicant shall provide a means of catching, retaining and properly disposing of drained oil, removed oil filters, or other deleterious material from equipment used on site. Vehicle maintenance shall be completed off site. All oil spills shall be immediately reported to the department of energy and environmental protection/hazardous materials office. Failure to do so may result in the imposition of fines under the applicable Connecticut General Statutes.

During construction, the applicant shall be responsible for site inspection and maintenance to assure proper performance of erosion control measures. Inspection and maintenance shall include, at a minimum, the following:

- Inspect all sediment fence, wood chip berms and other erosion control measures. Repair or replace any damaged portion in order to insure its proper and effective operation. Remove accumulated sediment if required (greater than 4" depth).
- Inspect all stockpiles. Repair or replace any damaged portion of erosion control measures surrounding these areas in order to prevent sedimentation downgradient.
- Inspect grass restored areas. Revegetate any eroded or disturbed areas to provide permanent stabilization. Reseed and/or revegetate any areas that do not have a suitable stand of grass or any scoured areas to provide permanent stabilization.
- Inspect anti-tracking pad. Remove and dispose of pad and replace if pad is no longer functioning efficiently or accumulated sediment is to a depth of 2" below the stone surface.
- Inspect all wood chip berms. Remove accumulated sediment if required (blocking more than 3" depth of flow).
- Inspect downgradient areas of all solar arrays. Stabilize any eroded areas if found.

Erosion and Sediment Control Best Management Practices (BMP'S)

Minimize Disturbed Area and Protect Natural Features and Soil:

Topsoil:

Topsoil will be removed and stockpiled on site and utilized for final grading. Additional topsoil, if required will be supplied from an off-site source. Excess materials resulting from "cut slopes" in the areas of the proposed construction that are not intended for reuse will be immediately removed from the site. When soil is stockpiled, the slope of the stockpile will not exceed 2 horizontal to 1 vertical.

Installation Schedule: As noted, excavated topsoil will be stockpiled on site. Sediment fence will be placed around any stockpiles that are not immediately removed from the site to protect the existing drainage ditches and off site areas.

Maintenance and Inspection: The cut and fill areas will be inspected weekly for erosion. These areas will be stabilized immediately with erosion controls or graded to avoid possible disturbance to the existing drainage ditches or off site areas. See also maintenance and inspection procedures for silt fence.

Control Stormwater Flowing Onto and Through the Project:

Area for Silt to accumulate:

BMP/Installation Schedule: Before any grading operations begin, a wood chip filter berm or sediment fence will be installed adjacent to the areas under construction just outside the limits of disturbance. Other adjacent off site areas will always be protected by a sediment fence or another BMP until final stabilization is achieved.

Maintenance and Inspection: The graded areas and sediment fence will be inspected weekly to ensure that there are no structural failures and immediately after rain events.

Construction Specifications

Erosion and Sediment Control Berm (Wood Chip Filter Berm)

1. The material for wood chip filter berms will be acquired in conjunction with the removal and chipping of trees located within the project area.

Installation

Erect wood chip filter berm in a continuous fashion at the specified height and width.

Maintenance:

1. Sediment should be removed once it has accumulated to a depth of 4".
2. Berm should be repaired if it has been breached.
3. Berm can be left in place permanently and left to deteriorate.
4. All sediment accumulated at the berm should be removed and properly disposed of if the berm is to be removed.

Sediment Fence

1. The material for sediment fences should be a pervious sheet of synthetic fabric such as polypropylene, nylon, polyester, or polyethylene yarn.
2. The stakes used to anchor the filter fabric should be wood or metal. Wooden stakes should be at least 3 feet long and have a minimum diameter of 2 inches if a hardwood like oak is used. Stakes from soft woods like pine should be at least 4 inches in diameter.
3. Erect sediment fence in a continuous fashion from a single roll of fabric to eliminate gaps in the fence. If a continuous roll of fabric is not available, overlap the fabric from both directions only at stakes or posts. Overlap at least 6 inches. Excavate a trench to bury the bottom of the fabric fence at least 6 inches below the ground surface. This helps to prevent gaps from forming near the ground surface. Gaps would make the fencing useless as a sediment barrier.
4. The height of the fence posts should be 16 to 34 inches above the original ground surface. Space the posts no more than 10 feet apart.
5. The fence should be designed to withstand the runoff from a 10-year peak storm event. Once installed, it should remain in place until all areas upslope have been permanently stabilized by vegetation or other means.

Installation:

1. Dig a 6" deep trench on the uphill side of the proposed barrier location.
2. Position the posts on the downhill side of the fabric barrier and drive the post 1.5 feet into the ground.
3. Lay the bottom 6" of the fabric barrier in the trench to prevent undermining and backfill.

Maintenance:

1. Sediment should be removed once it has accumulated to 4" depth.
2. Filter fabric should be replaced whenever it has deteriorated to such an extent that the effectiveness of the fabric is reduced (approximately six months).
3. Sediment fence should remain in place until disturbed areas have been permanently stabilized.
4. All sediment accumulated at the fence should be removed and properly disposed of before the fence is removed.

Inspection:

1. Inspect sediment fence before anticipated storm events (or series of storm events such as intermittent showers over one or more days) and within 24 hours after the end of a storm event of 0.5 inches or greater, and at least once every seven calendar days, at least 72 hours apart.
2. Where sites have been finally or temporarily stabilized, such inspections may be conducted once per month.

Straw Bale Barrier

Installation

1. Excavate trench 4" and place material upslope of trench.
2. Place bales in a single row in the trench, lengthwise, with ends of adjacent bales tightly abutting one another and the bindings oriented around the sides rather than along the tops and bottoms of the bales (to avoid premature rotting of the bindings).
3. Anchor each bale with at least 2 stakes, driving the first stake in each bale toward the previously laid bale to force the bales together. Stakes must be driven a minimum of 18 inches into the ground. Fill any gaps between the bales with straw to prevent water from escaping between the bales.
4. Backfill the bales with the excavated trench material to a minimum depth of 4 inches on the uphill side of the bales. Tamp by hand or machine and compact the soil. Loose straw scattered over the disturbed area immediately uphill from the hay bale barrier tends to increase barrier efficiency.

Maintenance

1. Inspect the straw bale barrier at least once a week and within 24 hours of the end of a storm with a rainfall amount of 0.5 inch or greater to determine maintenance needs. For dewatering operations, inspect frequently before, during, and after pumping operations. Remove the sediment deposits when sediment deposits reach approximately one half the height of the barrier.
2. Replace or repair the barrier within 24 hours of observed failure. Failure of the barrier has occurred when sediment fails to be retained by the barrier because:
   (a) the barrier has been overtopped, undercut or bypassed by runoff water,
   (b) the barrier has been moved out of position, or
   (c) the straw bales have deteriorated or been damaged.
3. When repetitive failures occur at the same location, review conditions and limitations for use and determine if additional controls are needed to reduce failure rate or replace straw bale barrier.
4. Maintain the straw bale barrier until the contributing area is stabilized. After the upslope areas have been permanently stabilized, pull the stakes out of the hay bales. Remove sediment.

Dust Control:

Dust from the site will be controlled by using a mobile pressure-type distributor truck that will apply potable water at rate of 300 gallons per acre and minimized as needed to avoid ponding.

Installation Schedule: Dust control will be implemented as needed once site grading has been initiated, and during windy conditions exceeding 20mph, while site grading is occurring. Spraying of potable water will be performed once per day during the months of March through May and no more than three times per day from June to September or whenever dryness of soil warrants it.

Maintenance Schedule: At least one mobile unit will be available at all times during construction to apply potable water. Each mobile unit shall be equipped with a positive shutoff valve to prevent over watering of disturbed areas.

Soil Stabilization:

Temporary Stabilization:

BMP Description: Hydromulching will be used on slopes where construction will cease for more than 14 days and over the winter months to stabilize erodible materials. Straw mulch and wood fiber will be mixed with a tackifier and applied uniformly by machine with an application rate of 2 tons (100-200 bales) per acre. The contractor will use crimping equipment to bind the mulch to the soil if the tackifier is not effective. Netting will be used on small areas with steep slopes. In areas where hydromulching is inaccessible, straw mulch will be applied by hand at the same application rate.

Temporary Seeding will be used on any area where construction activity is suspended for more than twenty-one days to stabilize erodible materials. Refer to the Erosion Control Plan for guidance on seeding mixtures, rates, and acceptable planting dates for temporary seeding.

Installation Schedule: Portions of the site where construction activities will temporarily cease for more than 14 days will be stabilized with mulch. Where construction activities will temporarily cease for more than 21 days it will be temporarily seeded. Winter stabilization will be provided between December 25 and March 30.

Maintenance and Inspection: Mulched areas will be inspected weekly to ensure that adequate coverage is provided. Repairs will be conducted as needed.

Seed Mixture For Temporary Seeding

	LBS./ACRE	LBS./1000 S.F.
Annual Ryegrass	40	1.0

See Figure TS-2 in the 2002 Guidelines for additional temporary seed mixes.

Final Stabilization:

Permanent seeding should be applied immediately after the final design grades are achieved at the site but no later than 14 days after construction activities have permanently ceased. After the entire site is stabilized, any sediment that has accumulated will be removed and hauled off site to a licensed landfill facility. Construction debris, trash, and temporary BMP's will also be removed and any areas disturbed during removal will be seeded immediately.

Seedbed Preparation:

1. Topsoil will be spread over final graded areas at a minimum depth of four inches. Topsoil shall inclusively mean a soil meeting one of the following soil textural classes established by the United States Department of Agriculture soil classification system based on the proportion of sand, silt, and clay size particles after passing a 2 millimeter (mm) sieve and subjected to a particle size analysis:
   1.1. Loamy sand, including coarse, loamy fine, and loamy very fine sand, sandy loam, including coarse, fine and very fine sandy loam, loam, or silt loam with not more than 60% silt;
   1.2. Containing not less than 6% and not more than 20% organic matter as determined by loss-on-ignition of oven dried samples dried at 105 degrees centigrade;
   1.3. Possessing a ph range of 6.0-7.5, except if the vegetative practice being used specifically requires a lower ph, then ph may be adjusted accordingly;
   1.4. Having soluble salts not exceeding 500 ppm;
   1.5. And that is loose and friable and free from refuse, stumps, roots, brush, weeds, frozen particles, rocks, and stones over 1.25 inches in diameter, and any material that will prevent the formation of a suitable seedbed or prevent seed germination and plant growth.
2. Fertilizer will be applied to the seedbed as needed. Fertilizers will be commercial type of uniform composition, free-flowing and conforming to the applicable State and Federal laws. Choose native species that are adapted to local weather and soil conditions wherever possible to reduce water and fertilizer inputs and lower maintenance overall.
3. Topsoil will be loosened by raking, tilling or other suitable methods.

Final stabilization should be installed on portions of the site where construction activities have permanently ceased but no later than 14 days after construction ceases.

All seeded areas will be inspected weekly during construction activities for failure until a dense cover of vegetation has been established. If failure is noticed on the seeded area, the area will be reseeded, fertilized and mulched immediately. After construction is complete at the site permanent stabilization measures will be monitored until final stabilization is reached.

Seed Mixture For Upland Areas

	LBS./ACRE	LBS./1000 S.F.
Kentucky Bluegrass	20	0.45
Creeping Red Fescue	20	0.45
Perennial Ryegrass	5	0.10
	45	1.00

The recommended seeding dates are: April 1-June 15 and August 1-September 15

Spill Preventation and Control Plan:

1. Vehicle Maintenance: Vehicles and equipment will be maintained off-site. All vehicles and equipment including subcontractor vehicles will be checked for leaking oil and fluids upon entering the site. Vehicles leaking fluid will not be allowed on-site. Drip pans will be placed under all vehicles and equipment that are parked overnight. Parking shall be in the areas designated on the site logistics plan or as approved by the property owner.
2. Vehicle Fueling: Refueling of vehicles and equipment shall be conducted in the designated laydown area. The location within the laydown area shall be comprised of an impervious surface without access to any subsurface drainage structures.
3. Hazardous Material Storage: Hazardous materials including but not limited to fuel, oil and petroleum products and solvents will be stored in an approved covered storage unit and provided with secured secondary containment with an impervious floor in accordance with federal and municipal regulations.
4. Material safety data sheets, a material inventory, and emergency contact information will be maintained at the on-site project trailer.
5. Spill Kits: Spill kits will be stored within the material storage area,concrete washout areas, and designated fueling area.
6. Spills: All spills will be cleaned up immediately upon discovery. Spent absorbent materials and rags shall be placed in a sealed drum and will be hauled off-site immediately after the spill is cleaned up for disposal at the appropriate landfill. Spills or releases of hazardous chemicals or petroleum products shall be promptly reported to CTDEEP at 1-800-424-3338 and the National Response Center 1-800-424-8802.

   In accordance with Connecticut General Statues the contractor shall within 24 hours of verbal notificationcomplete a written "Report of Petroleum or Chemical Product Discharge, Spillage or Release" and mail it to: CTDEEP, Bureau of Waste Management, 79 Elm Street, Hartford, Ct, 06106-5127.

Installation Schedule: The spill prevention and control procedures will be implemented once construction begins on-site.

Spill Prevention and Control Best Management Practices (BMP'S) Description:

1. Material Handling and Waste Management:

Waste Materials:

All waste materials will be collected and disposed of into metal waste dumpsters in designated areas. Dumpsters will have a secure tight lid, be placed away from storm water drains and structures, and will meet all federal, state, county, and local regulations. Only trash and construction debris will be placed in the dumpsters. Construction materials will not be buried on site.

Maintenance and Inspection: The dumpsters will be inspected weekly and immediately after storm events. The dumpster will be emptied weekly or more frequently if needed, and taken to the appropriate landfill.

Hazardous Waste Materials:

BMP Description: All hazardous waste materials including oil filters, petroleum products, paint, and equipment maintenance fluids will be stored in structurally sound and sealed shipping containers in a designated area. Hazardous waste materials will be stored in appropriate and clearly marked containers and segregated from other non-waste materials. Secondary containment will be provided for all waste materials in a designated area and will consist of commercially available spill pallets. Additionally, all hazardous waste materials will be disposed of in accordance with federal, state, county, and local regulations. Hazardous waste materials will not be disposed of into the on-site dumpsters.

Maintenance and Inspection: The hazardous waste materials area will be inspected weekly and after storm events. The storage area will be kept clean, well organized and equipped with ample cleanup supplies as appropriate for the materials being stored. Material safety data sheets, material inventory, and emergency contact numbers will be maintained in the office trailer.

Sanitary Waste:

BMP Description: Portable toilets, located in the staging area, will be provided at the site throughout the construction phase. The toilets will be located away from concentrated drainage flow paths and will have collection pans underneath as secondary containment.

Maintenance and Inspection: Sanitary waste will be collected a minimum of once a week and shall be inspected weekly for evidence of leaking holding tanks.

Recycling:

BMP Description: Wood pallets, cardboard boxes, and other recyclable construction scraps will be disposed of in a designated dumpster for recycling. The dumpster will have a secure watertight lid, be placed away from stormwater conveyances and drains and meet all local and state solid-waste management regulations. Only solid recyclable construction scraps from the site will be deposited in the dumpster.

Maintenance and Inspection: The recycling dumpster will be inspected weekly. The recycling dumpster will be emptied when full and taken to an approved recycling center by the contractor. If recyclable construction wastes are exceeding the dumpster's capacity, the dumpsters will be emptied more frequently.

2. Designate Washout Areas:

Concrete Washout

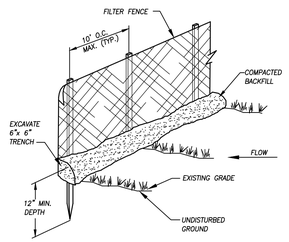
BMP Description: A designated temporary, above-grade concrete washout area will be constructed for concrete washout. The washout area will be lined with plastic sheeting at least 10 mils thick and free of holes or tears. Concrete pours will not be conducted during or before an anticipated storm event. Concrete mixer trucks and chutes will be washed in the designated washout area or concrete wastes will be properly disposed of off-site. When the temporary washout area is no longer needed for the construction project, the hardened concrete and materials used to construct the area will be removed and disposed of in accordance with all applicable local, State and Federal regulations, and the area will be stabilized.

Installation Schedule: The washout area will be constructed before concrete pours occur at the site.

3. Vehicle Fueling and Maintenance Practices:

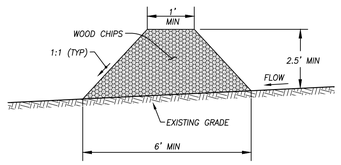
BMP Description: Several types of vehicles and equipment will be used on-site throughout the project, including graders, scrapers, excavators, loaders, rollers, trucks and trailers, backhoes, and forklifts. All major equipment/vehicle fueling will be performed in the staging area. This proposed activity is to be situated so that drainage facilities or water courses located in the area are not at risk from potential infiltration. Absorbent, spill-cleanup materials and spill kits will be available at the combined staging and materials storage area. Drip pans will be placed under all equipment parked overnight. Fuel will be delivered to the site on an as needed basis by a fuel delivery service. Fueling of equipment will only occur in designated fueling areas. Vehicle maintenance including washing is prohibited on site.

Installation Schedule: BMPs implemented for fueling activities will begin at the start of the project.



SEDIMENT FENCE DETAIL

NOT TO SCALE



SEDIMENT AND EROSION CONTROL BERM

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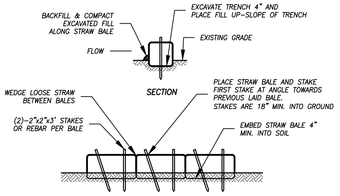

STRAW BALE BARRIER DETAIL

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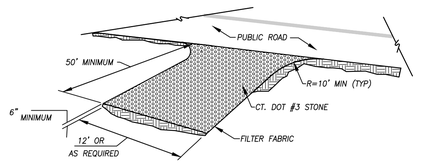

ANTI-TRACKING PAD

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SolarCity Corporation
Proposed Solar Photovoltaic System
1240 Poquonnock Road
Groton, Connecticut
Erosion & Sediment and Spill Prevention & Control Plan

SCALE: As Noted
DATE: October 2015
JOB I.D. NO. 15-2347
Revisions

SHEET NO.
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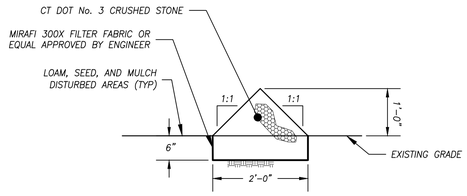

STONE CHECK DAM

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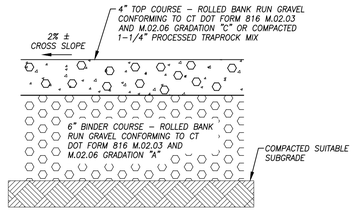

TRAFFIC BOUND GRAVEL SURFACE

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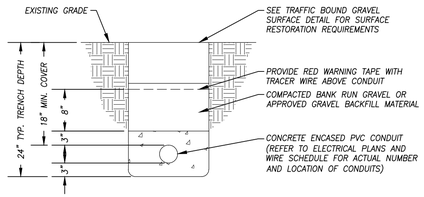

CONDUIT TRENCH THROUGH GRAVEL DRIVE DETAIL

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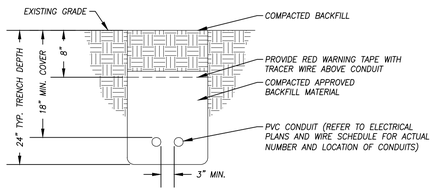

NON-TRAFFIC CONDUIT TRENCH DETAIL

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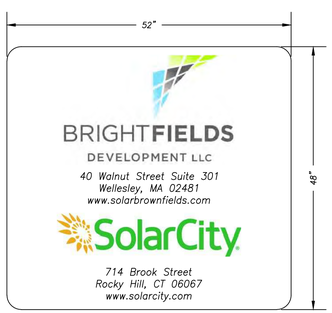
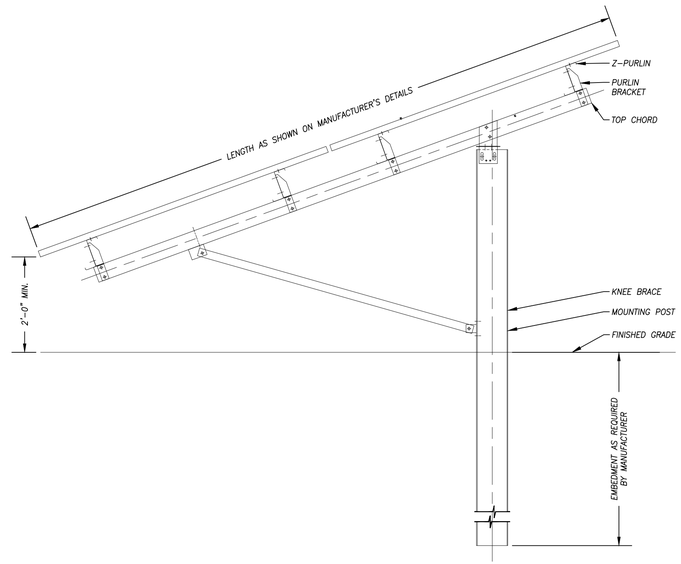


NOTE:
1. *SIGNS MOUNTED ON GATES AT ALL ENTRANCES.*
2. *SIGNS TO BE RATED FOR OUTDOOR ENVIRONMENTS.*

IDENTIFICATION SIGNAGE

NOT TO SCALE



NOTES:
SEE MANUFACTURER'S DETAIL SHEETS FOR ADDITIONAL INFORMATION REGARDING RACKING SYSTEM REQUIREMENTS AND INSTALLATION PROCEDURES. RACKING SYSTEM TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.

TYPICAL POST MOUNTED RACKING SYSTEM DETAIL

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SolarCity Corporation
Proposed Solar Photovoltaic System
1240 Poquonnock Road
Groton, Connecticut
Site Details

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JOB I.D. NO. 15-2347

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EXHIBIT 8

Decommissioning Plan

1240 Poquonnock Road Solar Project
Groton, CT

This Decommissioning Plan establishes the approach to conduct decommissioning activities for the permanent closure of the solar panels and appurtenant equipment (Project or Facility) at the end of the Facility's useful life or the permanent cessation of the Facility's' operation, whichever comes first. This Plan also describes the approach for removal and/or abandonment of facilities and equipment associated with the Facility's and describes anticipated land-restoration activities.

As background, the Site License Agreement (SLA) for the Facility site requires that no later than 90 days after its expiration all tangible personal property comprising the Facility must be removed from the site. The SLA also requires that the site be returned to its original condition, excepting ordinary wear and tear, including the removal of mounting pads or other support structures for the solar modules.

DECOMMISSIONING ACTIVITIES

In accordance with the SLA, decommissioning will involve removal and disposal or recycling of all Project components. All recyclable materials will be transported to the appropriate nearby recycling facilities. Any non-recyclable materials will be properly disposed of at a nearby landfill. 95% or greater of the Facility's components will be recyclable.

Decommissioning Preparation

Site decommissioning and equipment removal can take up to six months to complete for a project of this size. Therefore, access roads, fencing, and electrical power will temporarily remain in place for use by the decommissioning and site restoration workers until no longer needed. Demolition debris will be placed in temporary on-site storage areas pending final transportation and disposal/recycling according to the procedures listed below.

PV Equipment Removal and Recycling

During decommissioning, all Facility components that will not be used by the site owner will be removed from the site. Equipment removal will include all pad-mounted cabinets, wiring, solar modules, solar module racking, inverters, and panel boards. Pounded post foundations will be pulled up and removed. Any resulting holes will be backfilled with locally imported soil to match existing site soil conditions. The concrete transformer and interconnection equipment pads will be broken up and removed.

The demolition debris and removed equipment may be cut or dismantled into pieces that can be safely lifted or carried with the on-site equipment being used. The majority of glass, steel and aluminum will be processed for transportation and delivery to a licensed off-site recycling center. The solar modules will be transported to and recycled at the nearest facility that will accept them. Minimal non-recyclable materials are anticipated; these will be properly disposed of at the nearest qualified disposal facility.

Internal Power Collection System

The DC and AC power collection system will be dismantled and removed. All conduit and cabling that is removed will be recycled.

Access Roads

The existing onsite access driveway will remain in place to accomplish decommissioning at the end of the Facility's life.

Security Fence

The existing 6-foot high chain link perimeter security fence will remain in place and will not be removed during the decommissioning process.

Landscaping

The row of screening vegetation along certain areas of the southern perimeter of the Site will remain in place during decommissioning activities for site safety and security purposes. At the time of decommissioning, if the landowner determines that this landscaping will be beneficial for the future use of the site, the landscaping may remain. If the landscaping will not be used by the landowner, it will be removed and transported to the nearest plant material disposal facility for composting or mulching. Shrubs, bushes, and trees would be stump cut to just below ground level.

Interconnection Line

The overhead interconnection cabling that connects the Project to the Groton Utilities distribution network will remain in place during decommissioning activities to provide electric service onsite during decommissioning. At the time of decommissioning, if the landowner determines that this electric service line will be beneficial for the future use of the site, the line may remain after decommissioning. If the line is not used, it will be removed per Groton Utilities guidelines and transported offsite to the nearest recycling facility.

SITE RECLAMATION

After the Project is completely decommissioned, and all Project equipment has been removed from the Site, additional activities will be performed to return the property back to its pre-construction conditions, excepting ordinary wear and tear.

Any site restoration or monitoring activities completed on the site will comply with applicable DPH requirements.

Restoration Process

The decommissioning process will remove Project-related structures and infrastructure as described in the previous sections. Following decommissioning, site reclamation activities will occur. Reclamation will restore landform features, vegetative cover, and hydrologic function after the closure of the facility. The process will involve (where needed) the replacement of topsoil and vegetation, as well as modification of site topography where necessary to bring the Site back to substantially pre-construction conditions compatible with the adjacent surroundings.

Any excavated areas remain after removal of equipment pads or access road base material, will be backfilled and compacted with locally imported soil to match existing onsite soils, and hydroseeded with a seed mix to match existing onsite groundcover. Any other areas of lower than average ground surface level will receive similar treatment.

If any soils are compacted at levels that would affect successful re-vegetation, they will be de-compacted. The method of de-compaction will depend on how compacted the soil has become over the life of the Project. Following de-compaction, re-contouring of the site will be conducted, if necessary, to return the Site to approximately match the pre-construction surface conditions and the surrounding area conditions. Original site drainage characteristics will be restored if they have not been maintained. It is unlikely that a significant amount of earthwork will be required, because the Project construction plan calls for minimal disturbance of the Site during Project construction. Grading activities will be limited to areas as shown on the design plans that require re-contouring. Efforts will be made to disturb as little of the natural drainages and existing natural vegetation that remain post-decommissioning as possible.

Any remaining bare earth areas will be hydroseeded with a seed mix to match existing onsite groundcover. Site restoration activities are anticipated to be limited, because the pre-construction conditions of the site are not planned to be significantly altered during Project construction. Also, any other activities that become necessary will be performed to return the Site to a pre-construction condition.

Monitoring Activities

The Site will be monitored by SolarCity after site restoration activities are complete to confirm that any earthwork and re-vegetation were performed correctly. The Site will be periodically inspected (at least quarterly) to check for any eroded earthwork or failed vegetation. Any deficiencies will be promptly corrected. This monitoring will continue for a period of one year, or until the Site is re-developed for another future purpose, whichever comes first.