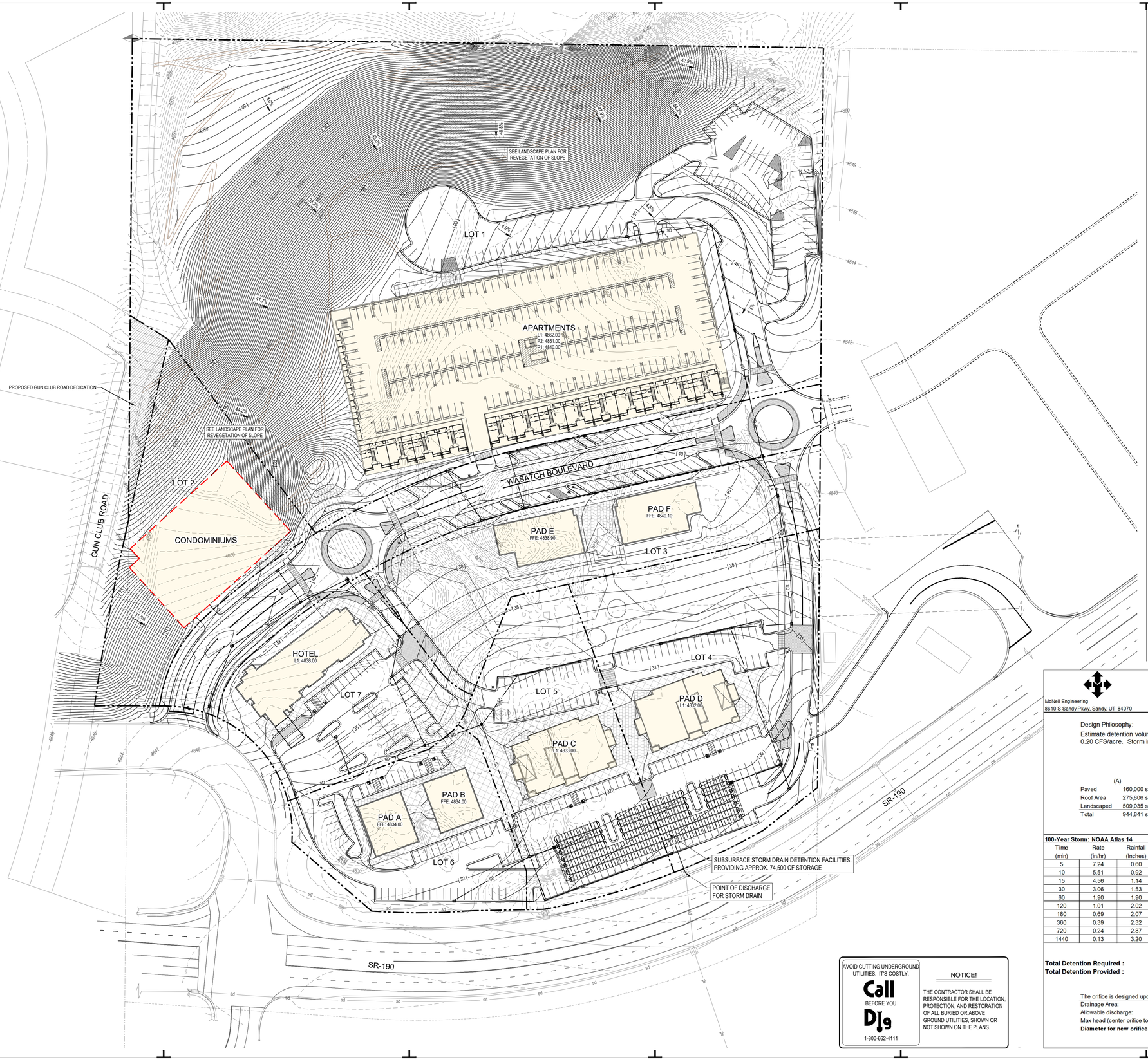

NORTH

SCALE: 1" = 60'

0 30' 60' 120' 180'

THE MASSING AND DENSITY OF THE CONDOMINIUMS, INCLUDING TOTAL NUMBER OF UNITS, HEIGHT, SQUARE FOOTAGE, ETC. WILL BE DETERMINED WITH A FUTURE PHASE.

AVOID CUTTING UNDERGROUND UTILITIES. IT'S COSTLY.
Call BEFORE YOU Dig
1-800-662-4111

NOTICE!

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION, PROTECTION, AND RESTORATION OF ALL BURIED OR ABOVE GROUND UTILITIES, SHOWN OR NOT SHOWN ON THE PLANS.

McNeil Engineering
8610 S Sandy Pkwy, Sandy, UT 84070

STORM RUNOFF
CALCULATION SHEET
Project No.
17512

Title : Gravel Pit
Scope : Site Drainage Design
Detention Facilities
Engineer : TJD | Check: TJD
Authority : Cottonwood Hts. | Rev. No.: 0

Design Philosophy:

Estimate detention volume required for 100-year storm with peak allowable discharge rate of 0.20 CFS/acre. Storm intensity data from NOAA Atlas 14.

Gravel Pit

	(A)		(C)		(C*A)
Paved	160,000 sf	(3.67 ac)	0.90	=	144,000 sf
Roof Area	275,806 sf	(6.33 ac)	0.90	=	248,225 sf
Landscaped	509,035 sf	(11.69 ac)	0.25	=	127,259 sf
Total	944,841 sf	(21.69 ac)	0.55 (ave)		519,484 sf

100-Year Storm: NOAA Atlas 14 Peak Discharge= (2.17cfs)

Time (min)	Rate (in/hr)	Rainfall (Inches)	Q in (cfs)	Add'l Q in (cfs)	Total Q in (cfs)	Q out (cfs)	Storage (cf)
5	7.24	0.60	87.01	0.00	87.01	2.17	25,453
10	5.51	0.92	66.23	0.00	66.23	2.17	38,439
15	4.56	1.14	54.83	0.00	54.83	2.17	47,399
30	3.06	1.53	36.80	0.00	36.80	2.17	62,330
60	1.90	1.90	22.85	0.00	22.85	2.17	**74,443**
120	1.01	2.02	12.15	0.00	12.15	2.17	71,829
180	0.69	2.07	8.30	0.00	8.30	2.17	66,185
360	0.39	2.32	4.65	0.00	4.65	2.17	53,582
720	0.24	2.87	2.88	0.00	2.88	2.17	30,539
1440	0.13	3.20	1.60	0.00	1.60	1.60	0

Total Detention Required : **74,443 cf**
Total Detention Provided : **74,500 cf (via subsurface detention)**

The orifice is designed upon the following data:
Drainage Area: 21.69 acres
Allowable discharge: 2.17 cfs (0.10 cfs/ac)
Max head (center orifice to hw): 6.00 ft
Diameter for new orifice: **5.8 inch (max. size)**

$$Q = C_d A_o \sqrt{2gh}$$

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Structural Engineering • Land Surveying & HDS

WASATCH ROCK

6695 WASATCH BLVD
COTTONWOOD HEIGHTS, UT

REVISIONS

REV	DATE	DESCRIPTION

PROJECT NO: 17512
DRAWN BY: JHF, DSM
CHECKED BY: TJD
DATE: JULY 14, 2021

CONCEPTUAL DRAINAGE PLAN

SK-05

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