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ARCHITECTURE
ENGINEERING
STUDIES
PLANNING
INVESTIGATION
EXPERT WITNESS

CECIL BOYD'S
CAR WASH
LOT 5A
EAST HALL ST.
SLIDELL, LA

DRAINAGE
PLAN

REV: 10-4-10

SCALE: AS NOTED

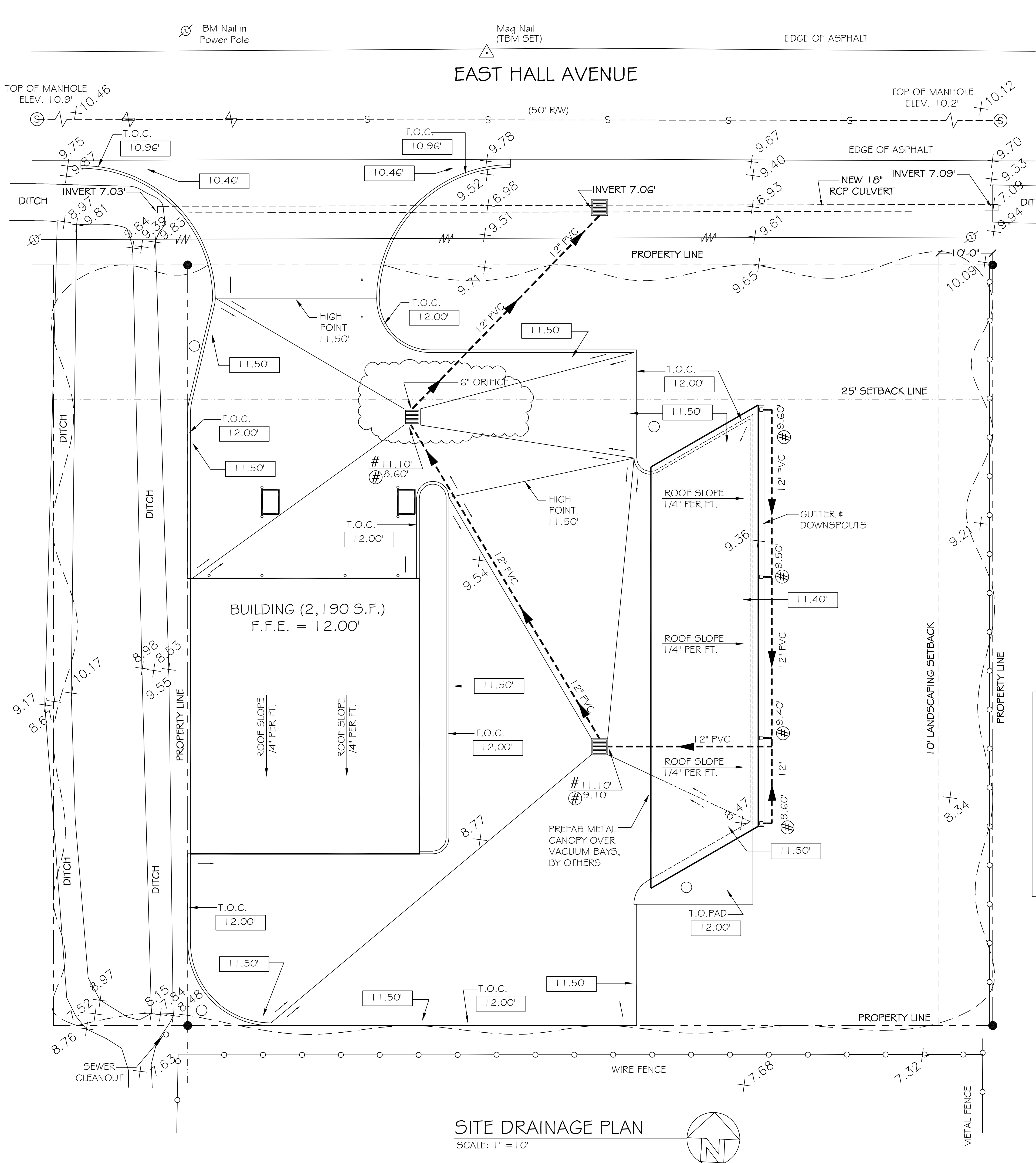
JOB#: 2074

DATE: 09-13-10

SHEET 5

C-4

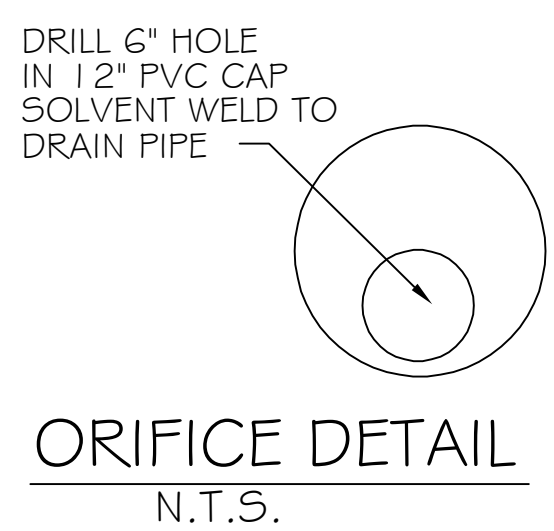
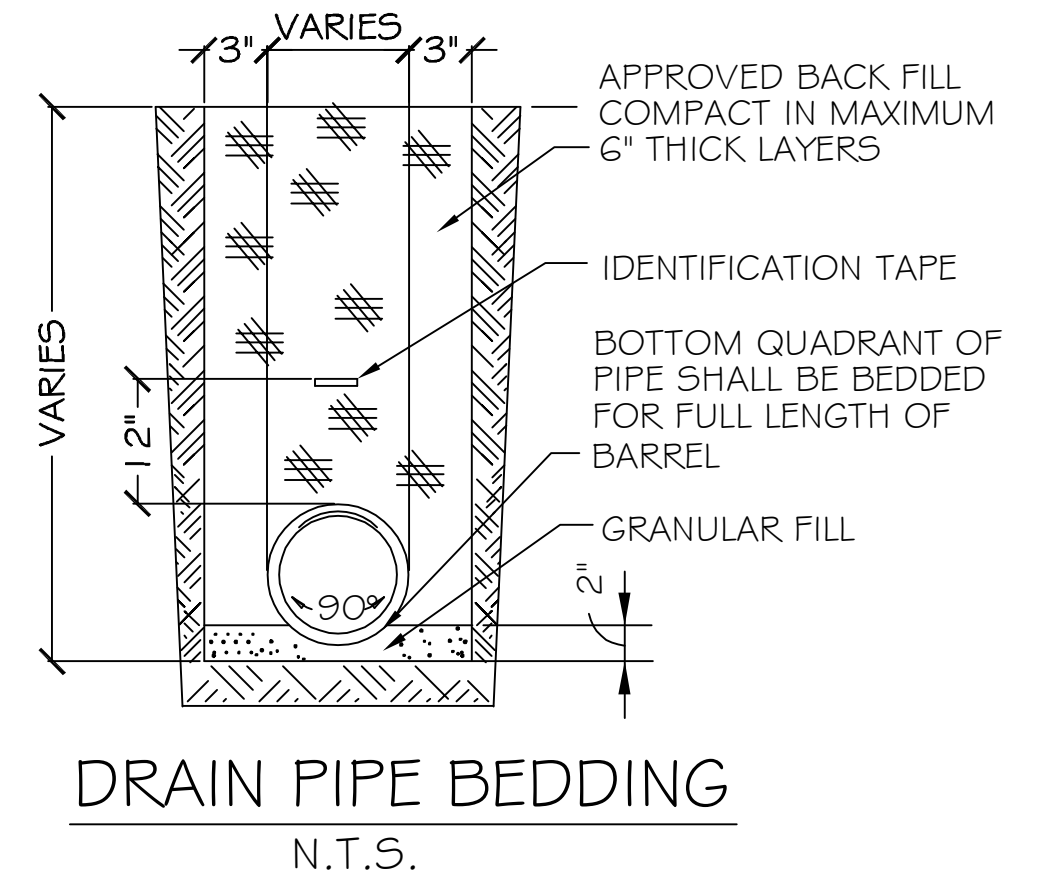
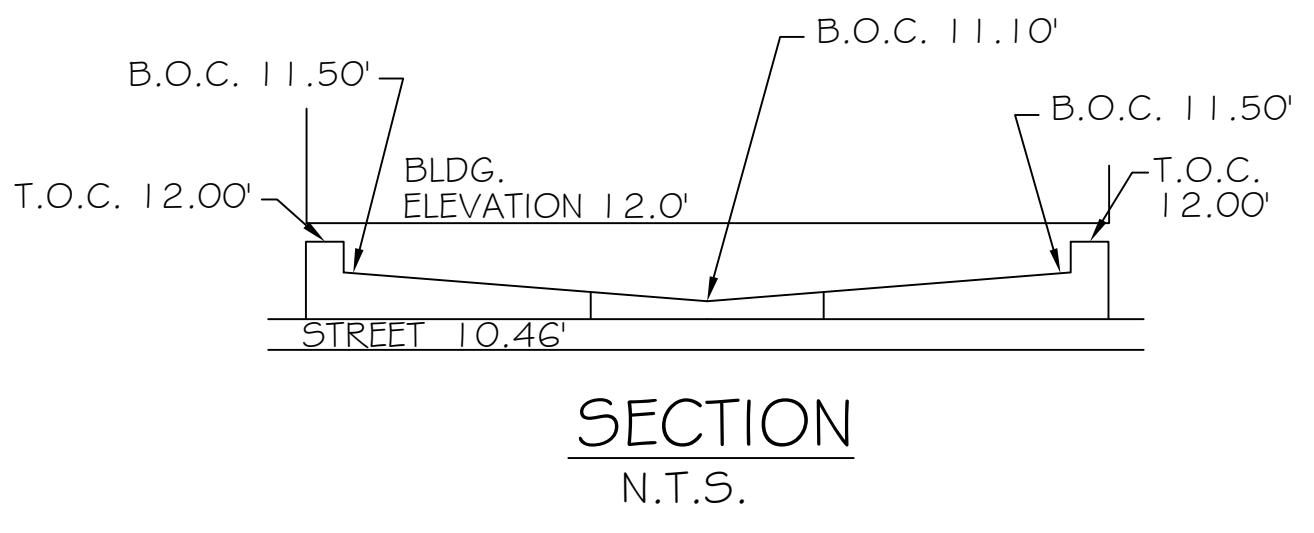
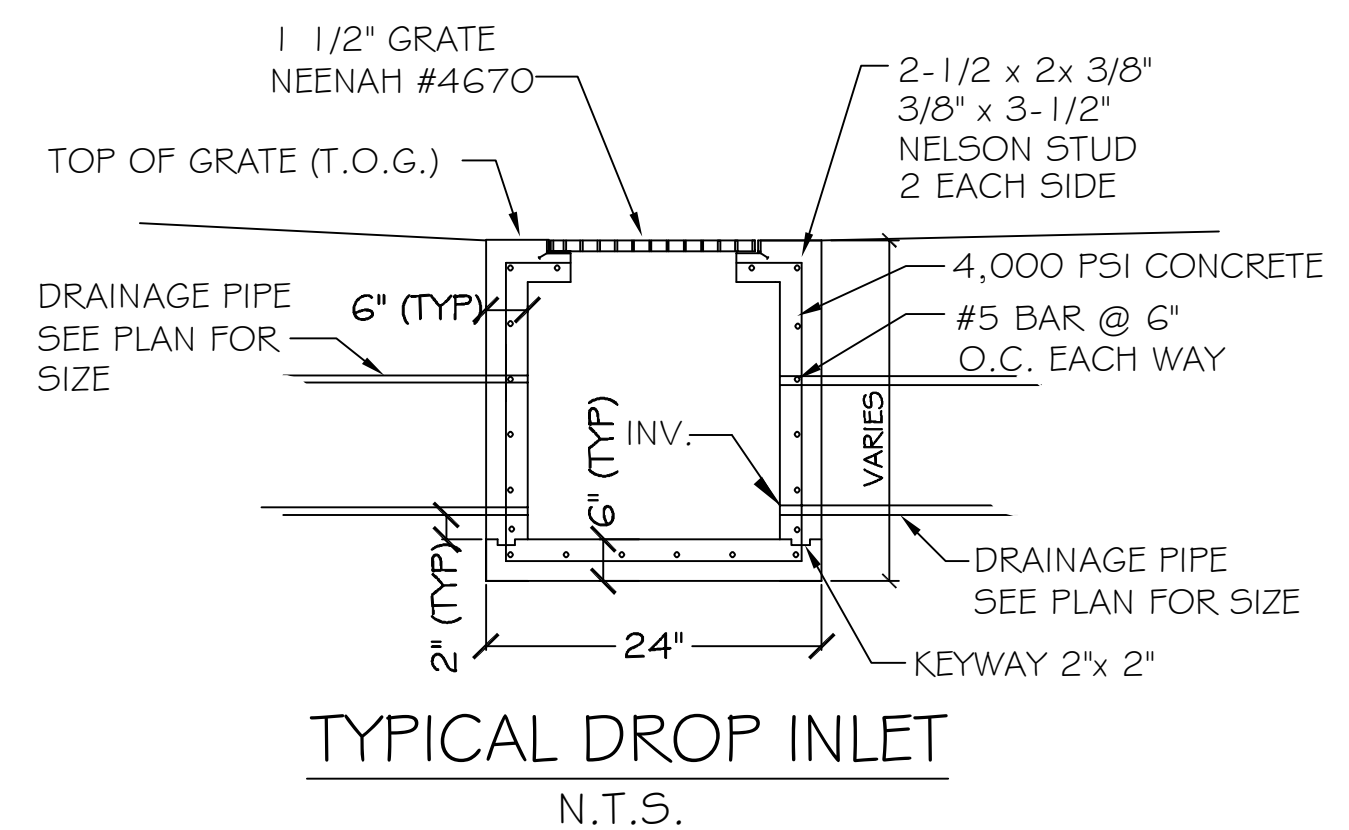
OF 18



SITE DRAINAGE PLAN
SCALE: 1" = 10'

LEGEND:

- - - - - PROPERTY LINE
- - - - - UTILITY / EASEMENT LINE
- - - - - BUILDING SETBACK MINIMUM
- - - - - LANDSCAPING SETBACK MINIMUM AND BUFFER ZONE LIMITS AT REAR
- - - - - NEW BUILDING
- - - - - NEW DRAIN LINE
- - NEW DROP INLET w/TEMP. SILT FENCING
- # - T.O. GRATE ELEVATION
- ⊕ - INVERT ELEVATION
- - NEW ELEVATIONS
- x00.00' - EXISTING ELEVATIONS
- - - - - TEMPORARY SILT FENCING
- +9.9x - EXISTING SURVEY TOPO POINTS



- NOTES:**
- 1) DRAIN PIPE & FITTINGS WITHIN PROPERTY LINE SHALL BE POLYVINYL CHLORIDE PLASTIC PIPE, MEETING CLASS 100 C-900 PVC.
 - 2) ELEVATIONS SHOWN ARE M.S.L.
 - 3) FIELD VERIFY ALL ELEVATIONS AND DRAINAGE SYSTEM PLACEMENT PRIOR TO START OF WORK.
 - 4) MUCK OUT 24" DEEP FOR FOUNDATION PAD MINIMUM OR TO UNDISTURBED SOIL CAPABLE OF 1500 PSF BEARING.
 - 5) DOWNSPOUTS SHALL FLOW INTO SUB-SURFACE DRAINAGE.
 - 6) THERE IS NO EVIDENCE OF EXISTING OFF-SITE FLOW CROSSING THE PROPERTY. NEW DRAINAGE CALCULATIONS ARE DETERMINED ACCORDINGLY.

PROJECT: CAR WASH
DRAINAGE RUN OFF CALCULATIONS -- MODIFIED RATIONAL METHOD

Q₁ = CIA

		PRIOR DEVELOPMENT 10 Year Frequency	
Watertight Surfaces	c(1) = 0.9	0	sqft = 0.000 Acres
Gravel Surface	c(2) = 0.25	0	sqft = 0.000 Acres
Green Space	c(3) = 0.35	21,262.00	sqft = 0.488 Acres
Summary	c = 0.35	21262	sqft = 0.488 Acres

Duration (D) = Time of concentration (TC)
 $TC = .7039(L^{.3917})(c^{-.1.1309})(S^{-.1985})$
 where L = 141 Runoff length ft, Elev diff = 0.5
 c = 0.35 Runoff coef
 S = 0.3546 Percent Slope
 therefore TC = D = 19.69 minutes
 and from Rainfall Intensity Table I = 3.50 in/hr

Q₁ = 0.598 cfs RUNOFF LIMIT 85% 0.508 cfs

Q₂ = CIA

		POST DEVELOPMENT 10 Year Frequency	
Watertight Surfaces	c(1) = 0.9	8784	sqft = 0.202 Acres
Gravel Surface	c(2) = 0.25	0	sqft = 0.000 Acres
Green Space	c(3) = 0.35	12478	sqft = 0.286
Summary	c = 0.58	21262	sqft = 0.488 Acres

D = Time of concentration (TC)
 $TC = .7039(L^{.3917})(c^{-.1.1309})(S^{-.1985})$
 where L = 113 Runoff length ft, Elev diff = 0.75
 c = 0.58 Runoff coef
 S = 0.6637 Percent Slope
 therefore TC = D = 9.06 minutes or
 and from Rainfall Intensity Table I = 3.50 in/hr

Q₂ = 0.986 cfs

RESULTS

DETENTION REQUIRED	Q ₂ -Q ₁	0.478 cfs
TWO HOUR DETENTION		3440.7 cuft
DETENTION DIMENSIONS	WIDTH	105 feet
	LENGTH	113 feet
	DEPTH	0.29 feet

DISCHARGE END AREA CALCULATIONS
 where Q is allowable run off

Allowable run off	Q = 0.508 cfs
Friction loss factor	c = 0.98 coefficient
Acceleration	g = 32.2 ft/sec
Height above invert	if H = 2.00 feet
End area	A = 0.05 sqft

REQUIRED CONDUIT = 4.22 inch diameter
 USE 6 inch orifice