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ARCHITECTURE

ENGINEERING

STUDIES

PLANNING

INVESTIGATION

EXPERT WITNESS

PAUL REES

OFFICE BUILDING

2271 8TH. ST.

MANDEVILLE, LA

70471

DRAINAGE

PLAN

REV: 9-29-11

SCALE: AS NOTED

JOB#: 2104

DATE: 05-20-11

SHEET 4

C-3

OF 20

PROJECT: PAUL REES OFFICE BUILDING

STORMWATER RUN OFF CALCULATIONS -- RATIONAL METHOD

PRIOR DEVELOPMENT
25 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) = 0.15	10808	sqft = 0.248 Acres
Summary	c = 0.15	10808	sqft = 0.248 Acres

Duration (D) = Time of concentration (TC)

TC = .7039(L^{0.3917}(c^{-1.1309}(S^{0.1985}))

where L = 140 Runoff length ft

c = 0.15 Runoff coef

S = 1.0000 Percent Slope

therefore TC = D = 21.69 minutes

and from Rainfall Intensity Table I = 3.64 in/hr

Q₁ = 0.135 cfs

10% reduction 0.014 cfs

POST DEVELOPMENT
25 Year Frequency

Watertight Surfaces	c(1) = 0.9	6028	sqft = 0.138 Acres
Gravel Surface	c(2) = 0.25	0	sqft = 0.000 Acres
Green Space	c(3) = 0.15	4780	sqft = 0.110 Acres
Summary	c = 0.57	10808	sqft = 0.248 Acres

D = Time of concentration (TC)

TC = .7039(L^{0.3917}(c^{-1.1309}(S^{0.1985}))

where L = 122 Runoff length ft

c = 0.57 Runoff coef

S = 2.5410 Percent Slope

therefore TC = D = 12.16 minutes or

and from Rainfall Intensity Table I = 3.64 in/hr

Q₂ = 0.513 cfs

Elev diff = 3.1

DETENTION REQUIREMENTS

DETENTION REQUIRED Q₂-Q₁ 0.38 cfs

ONE HOUR DETENTION 1360.0 cuft

DETENTION DIMENSIONS

WIDTH 72 feet

LENGTH 40 feet

DEPTH 0.47 feet

DISCHARGE END AREA REQUIREMENTS
10 Year Frequency

where Q is allowable run off

Q = cA(2gh)^{1/2}

Allowable run off 0.014 cfs

Friction loss factor c = 0.62 coefficient

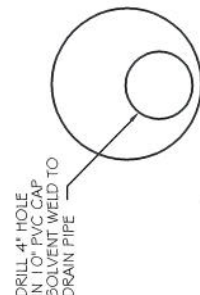
Acceleration g = 32.16 ft/ft²sec

Height above invert h = 3.00 feet

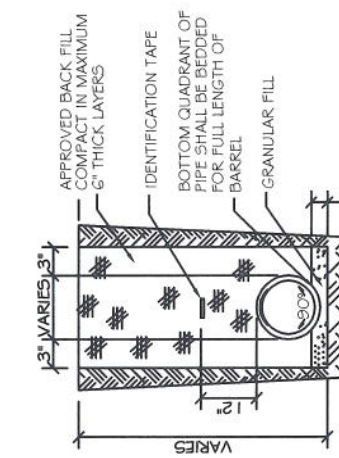
End area A = 0.002 sqft

REQUIRED CONDUIT = 0.54 inch diameter

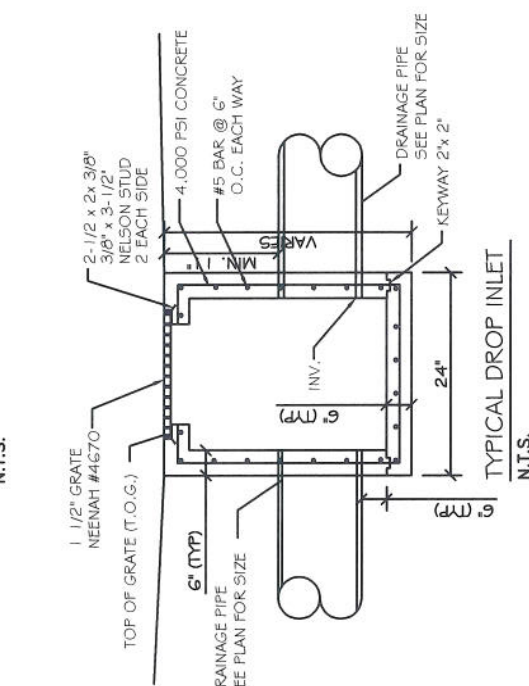
USE 4 inch orifice



ORIFICE DETAIL
N.T.S.



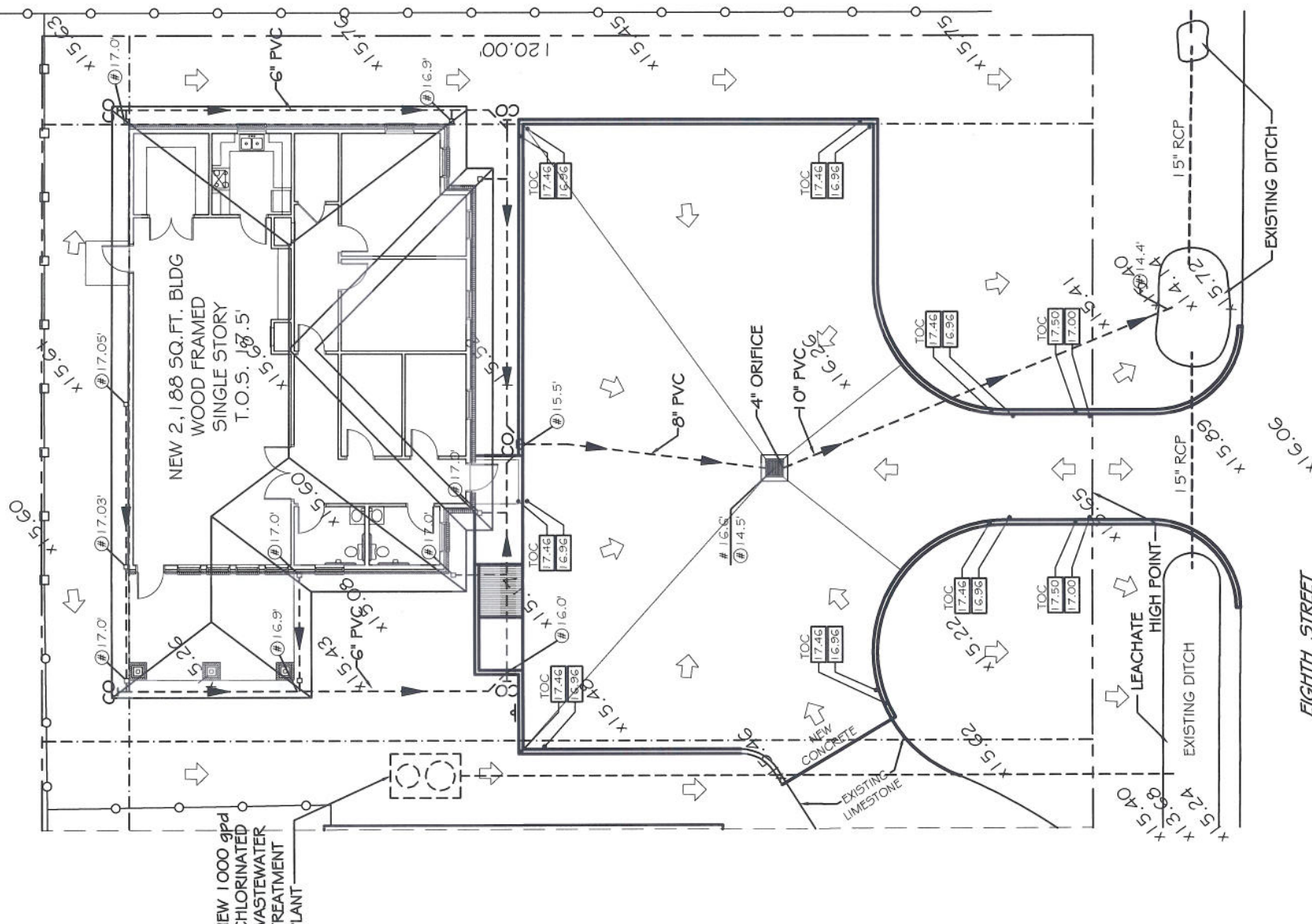
DRAIN PIPE BEDDING
N.T.S.



TYPICAL DROP INLET
N.T.S.

- DRAINAGE 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) DOWN SPOUTS SHALL FLOW INTO SUB-SURFACE DRAINAGE SYSTEM.
 - 5) THERE IS NO EVIDENCE OF EXISTING OFF-SITE FLOW CROSSING THE PROPERTY. NEW DRAINAGE CALCULATIONS ARE DETERMINED ACCORDINGLY.

- LEGEND**
- - - - - PROPERTY LINE
 - - - - - SETBACK
 - NEW DROP INLET w/TEMP. SILT FENCE
 - # 0.00' NEW ELEVATION
 - # 0.00' INVERT ELEVATION
 - # 0.00' TOP OF GRATE ELEVATION
 - ▲- NEW DRAINAGE PIPE
 - ▲- EXISTING DRAINAGE PIPE
 - ▲- SHEET FLOW DIRECTION



DRAINAGE PLAN
SCALE: 1/8" = 1'-0"