

SOUTH LARGE PARKING LOT HAS THE SAME AVERAGE ELEVATION AS THE SITE. THEREFORE NO MITIGATION REQUIRED.

CHURCH ELEVATION = 28.56 FT HOWEVER BFE = 28.0 FT. (DIFF OF 1.23); THE CHURCH IS 4,984 S.F. WITH PORCH. 4,984 s.f. X 1.23' = 6,136 cu ft.

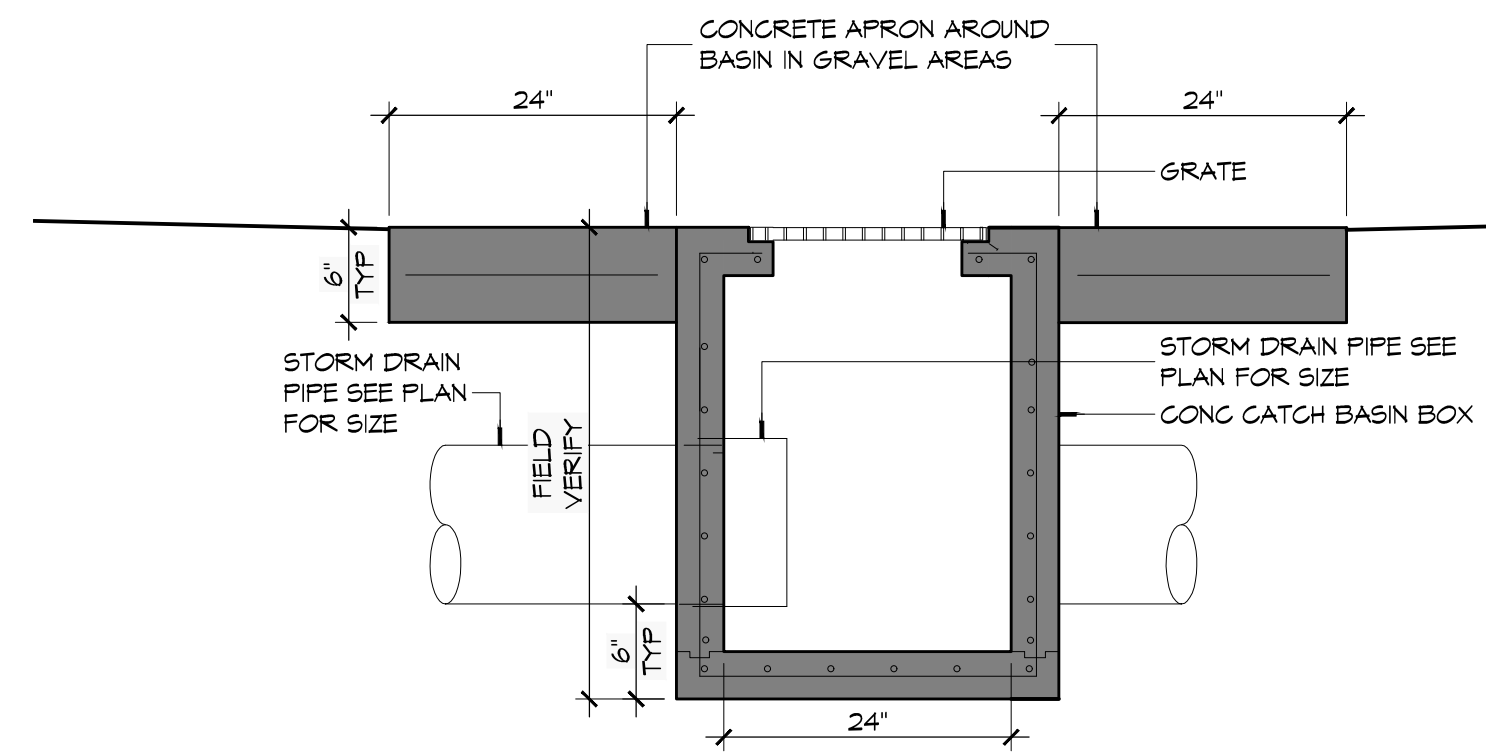
THE GROUND AROUND THE CHURCH ELEVATION = 28.06 FT HOWEVER BFE = 28.0 FT. (DIFF OF 1.23) AND IT SLOPES FOR 15' TO NATURAL GRADE. THE PERIMETER OF THE CHURCH = 306'. 1/2 X 1.23' X 15' X 306' = 2,823 cu. ft.

THE DRIVEWAY HAS THE SAME AVERAGE ELEVATION AS THE SITE. THEREFORE NO MITIGATION REQUIRED.

THE NORTH PARKING LOT HAS THE SAME AVERAGE ELEVATION AS THE SITE. THEREFORE NO MITIGATION REQUIRED.

AVERAGE LOT ELEVATION = 26.11 FT

TOTAL DISPLACEMENT = (6,136 + 2,823) cu ft = 8,959 cu. ft.
DIVIDE THIS BY THE LENGTH OF HOLE AND AVG DEPTH OF THE HOLE = 9,135 cu. ft.

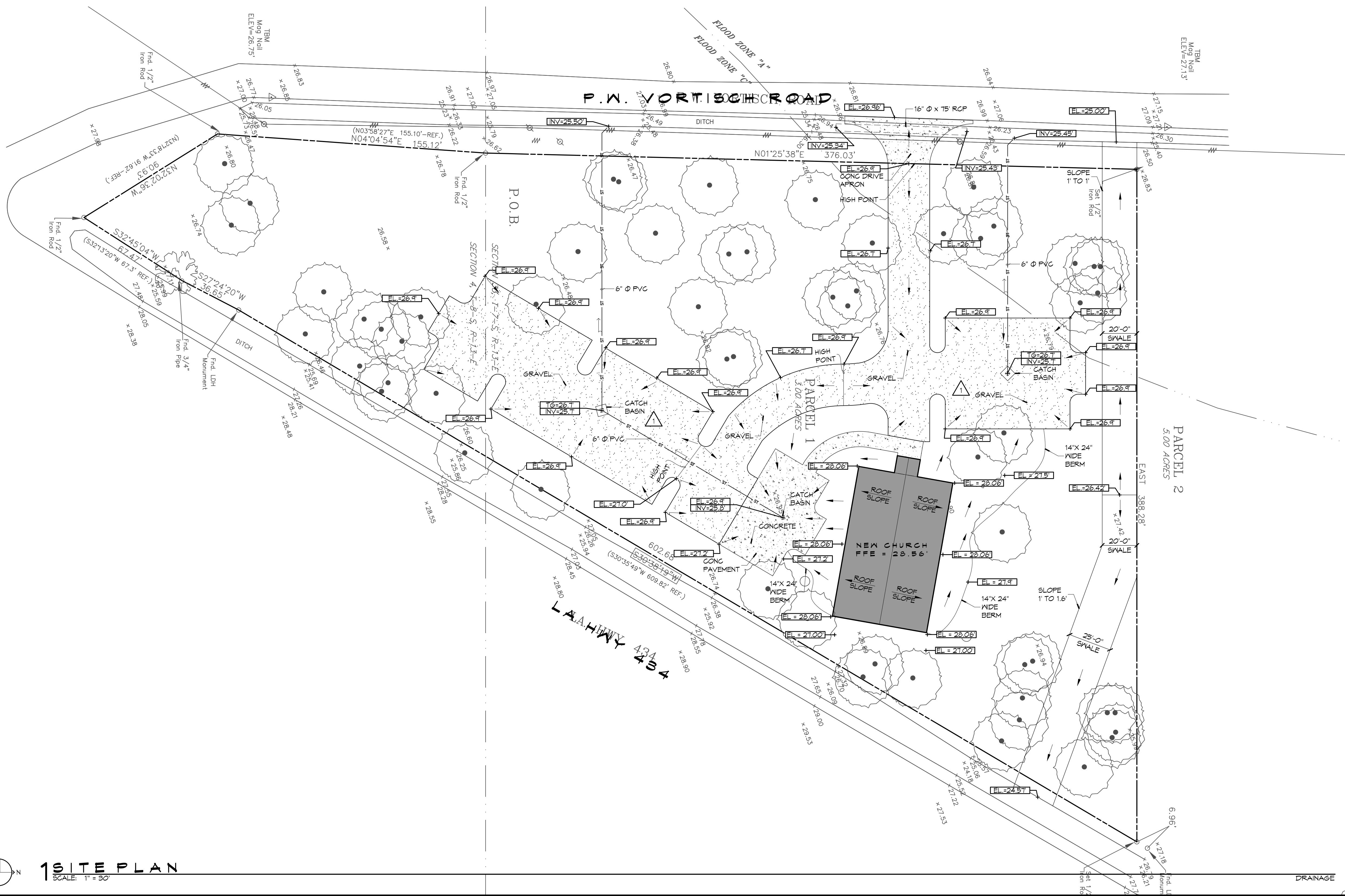


3 DETAIL SCALE: NTS

2 DETAIL SCALE: NTS

NO NET FILL CALCULATIONS

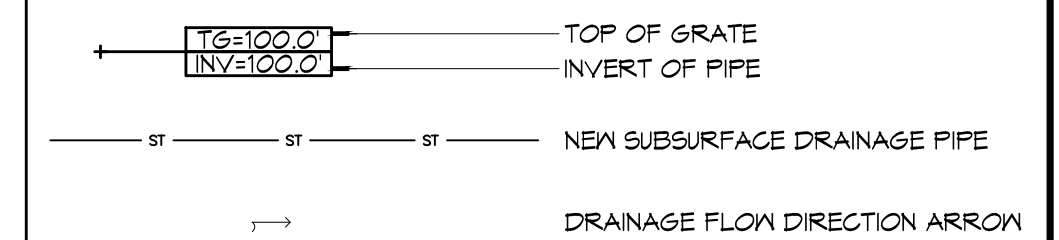
TYPICAL CATCH BASIN



GENERAL SITE DRAINAGE NOTES

- DRAIN PIPE(S) ALONG AIRPORT MUST BE THE BELL AND SPIGOT TYPE WITH "O" RING RUBBER GASKETS. THE BELLS OF THE PIPES SHALL BE LAID UPSTREAM. ALL JOINTS SHALL BE WRAPPED WITH GEOTEXTILE FABRIC. ALL PIPES SHALL REQUIRE A 3" COMPACTED SAND OR LIMESTONE BASE.
- REMOVE DEBRIS AND CLEAN BOTTOM OF DITCHES DOWN 6" IN DEPTH - REPLACE ANY BROKEN/CRUSHED PIPES OR CULVERTS WITH SAME SIZE AND TYPE.
- DRAIN PIPE AND FITTINGS WITHIN PROPERTY LINE SHALL BE POLYVINYL CHLORIDE PLASTIC PIPE, MEETING CLASS 100 C-400 PVC.
- ELEVATIONS SHOWN ARE M.S.L.
- FIELD VERIFY ALL ELEVATIONS AND AND DRAINAGE SYSTEM PLACEMENT PRIOR TO START OF WORK.
- PROVIDE VERTICAL ELBOW AT DOWNSPOUTS FOR CONNECTION TO SUBSURFACE DRAINAGE WHERE INDICATED. ELBOW ID SHALL BE SIZED SUCH THAT THE DOWNSPOUT CAN BE INSERTED INTO THE PIPE OPENING.

SITE DRAINAGE LEGEND



STORM WATER RUN-OFF CALCULATIONS

PROJECT: New Church
FORMULAS USED: RATIONAL METHOD: Q=ACI

where: Q = Peak discharge of watershed in cubic feet per second (cfs) due to maximum storm assumed.
A = Area of watershed in acres.
C = Coefficient of run-off [2].
I = Intensity of rainfall in inches per hour based on concentration time [3].

[4] TC = $\frac{(1.48 \sqrt{L})}{(S)^{0.5}}$ (1140 S^{0.5})
where: TC = Time of concentration time required for rain falling at most remote point to reach discharge point.
L = Run-off length in feet.
S = Percent slope of overland flow.

PRIOR DEVELOPMENT
25 Year Frequency

Q = ACI	Waterlight Surfaces	c(1)	Gravel Surface	c(2)	Green Space	c(3)	Summary	c
	0.4	0.25	0.15	0.15	131697	3.023	0.15	131697
	0.000	0.000	3.023	3.023				

Duration (D) = Time of concentration (TC)
where L = 602 run-off length ft. Elev diff 1
c = 0.15 run-off coef.
S = 0.1681 percent slope
therefore TC = D = 28.40 minutes
Expected rainfall intensity I = 3.64 in/hr

Q₁ = 1.651 cfs 18% reduction = 1.403 cfs

POST DEVELOPMENT
25 Year Frequency

Q = ACI	Waterlight Surfaces	c(1)	Gravel Surface	c(2)	Green Space	c(3)	Summary	c
	0.4	0.25	0.15	0.22	49165	2.276	0.22	131697
	0.188	0.959	2.276	2.276				

Duration (D) = Time of concentration (TC)
where L = 802 run-off length ft. Elev diff 1.2
c = 0.22 run-off coef.
S = 0.1445 percent slope
therefore TC = D = 24.17 minutes
Expected rainfall intensity I = 3.64 in/hr

Q₂ = 2.367 cfs

DETENTION REQUIREMENTS

Detention required = Q ₂ - (Q ₁ - 15%)	0.48 cfs
One Hour Detention	3488.8 cu ft
Detention Dimensions	WIDTH 8.4 feet
LENGTH	21.7 feet
DEPTH	0.25 feet

DISCHARGE END AREA REQUIREMENTS
25 Year Frequency

[5] A = $\frac{Q}{(c\sqrt{2gh})}$

where: A = Discharge Area required
g = Acceleration of gravity
c = Discharge coefficient
h = Hydraulic head
Q = Flow volume from run-off

Pipe Servicing Site Drainage
Q = 1.403 cfs h = 3.00 feet
c = 0.82 coefficient A = 0.183 sq ft
g = 32.16 ft/sec/sec

REQUIRED CONDUIT = 5.47 inch inside diameter

- References:
1. Chen, H.F. The Civil Engineering Handbook, 1999, Eq 311, pg. 1035
2. Beelye, Flynn F. Data Book for Civil Engineers, Vol. 1 1960, Tbl. B, pg. 18-02
3. Beelye, Flynn F. Data Book for Civil Engineers, Vol. 1 1960, Fig. B, pg. 18-01
4. Chen, H.F. The Civil Engineering Handbook, 1999, Tbl. 312 Regan Equation (n=0.015)
5. Chen, H.F. The Civil Engineering Handbook, 1999, Eq 2832, pg. 984

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DATE	REVISIONS
11-05-15	REVISED DRAINAGE

SEAL:

P R O M U L T I S
L A C O M B E C H A P E L

P.W. VORTSCH ROAD AND LA HWY 434
LACOMBE, LOUISIANA 70448

JOB No: 2250 DATE: SEPTEMBER 3, 2015
DRAWN BY: KJK CHECKED BY: CKD

SHEET TITLE: SITE PLAN - DRAINAGE

DRAWING NUMBER: **C102**

SHEET No: 4 of 14